iSecurity

DB-Gate™ User Manual

Software Version: 02.1

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RAZ-LEE™

The iSeries Security Experts

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Computer Model	
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1 About This Manual

This user guide is intended for system administrators and security administrators responsible for the implementation and management of security on AS400 systems. However, any user with basic knowledge of AS400 operations will be able to make full use of this product after reading this book.

Product Documentation Overview

Raz-Lee takes customer satisfaction seriously. Our products are designed for ease of use by personnel at all skill levels, especially those with minimal AS400 experience. The documentation package includes a variety of materials to get you familiar with this software quickly and effectively.

Printed Materials

This user guide is the only printed documentation necessary for understanding this product. It is available in user-friendly PDF format and may be displayed or printed using Adobe Acrobat Reader version 4.0 or higher. Acrobat Reader is included on the product CD-ROM.

This manual contains concise explanations of the various product features as well as step-by-step instructions for using and configuring the product.

Online Help

AS400 context sensitive help is available at any time by pressing the F1 key. A help window appears containing explanatory text that relates to the function or option currently in use. Online help will shortly be available in Windows help format for viewing on a PC with terminal emulation.

Typography Conventions

- Menu options, field names, and function key names are written in **Courier Bold**.
- References to chapters or sections are written in ***Italic.***
- OS/400 commands and system messages are written in **Courier**.
- Key combinations are separated by a dash, for example: Shift-Tab.
- Emphasis is written in **Times New Roman bold**.

iSecurity Product Suite

Raz-Lee's iSecurity is an integrated, state-of-the-art security solution for all System i servers, providing cutting-edge tools for managing all aspects of network access, data, and audit security. Its individual components work together transparently, providing comprehensive "out-of-the-box" security.

The iSecurity Product Suite includes:

Product	Description
Change Tracker	Change Tracker automatically tracks modifications in the software and file structure within production libraries. Changes are tracked at both the object and source levels. It does not require any special actions by programmers.
COMMAND	COMMAND monitors and filters commands and its parameters before they are run, enabling you to control each parameter, qualifier or element, in conjunction with the context in which it is about to run. Options include Allow, Allow with Changes and Reject. It includes a comprehensive log, proactive alerting and easily integrates with SIEM.
AOD	Authority on Demand provides an advanced solution for emergency access to critical application data and processes, which is one of the most common security slips in System i (AS/400) audits. Current manual approaches to such situations are not only error-prone, but do not comply with regulations and often-stringent auditor security requirements.
Capture	Capture silently captures and documents user screens for tracking and monitoring, without any effects on system performance. It also preserves job logs for subsequent review. Capture can run in playback mode and can be used to search within texts.

Product	Description
AP-Journal	AP-Journal automatically manages database changes by documenting and reporting exceptions made to the database journal.
Anti-Virus	Anti-Virus is a dedicated iSeries-specific product engineered to provide full protection to the server, its file contents, and resident iSeries or System i dedicated software.
Visualizer	Visualizer is an advanced DWH statistical tool with state-of-the-art technology. This solution provides security-related data analysis in GUI and operates on summarized files; hence, it gives immediate answers regardless of the amount of security data being accumulated.
Firewall	Firewall protects and secures all types of access, to and from the System i, within or outside the organization, under all types of communication protocols. Firewall manages user profile status, secures entry via pre-defined entry points, and profiles activity by time. Its Best Fit algorithm determines the validity of any security-related action, hence significantly decreasing system burden while not compromising security.
Audit	Audit is a security auditing solution that monitors System i events in real-time. It includes a powerful query generator plus a large number of predefined reports. Audit can also trigger customized responses to security threats by means of the integrated script processor contained in Action.

Product	Description
View	View is a unique, patent-pending, field-level solution that hides sensitive fields and records from restricted users. This innovative solution hides credit card numbers, customer names, etc. Restricted users see asterisks or zeros instead of real values. View requires no change in existing applications. It works for both SQL and traditional I/O.
Screen	Screen protects unattended terminals and PC workstations from unauthorized use. It provides adjustable, terminal- and user-specific timeout capabilities.
Password	Password provides a first-tier wall of defense for users by ensuring that user passwords cannot be easily cracked.
Assessment	Assessment checks your ports, sign-on attributes, user privileges, passwords, terminals, and more. Results are instantly provided, with a score of your current network security status with its present policy compared to the network if iSecurity were in place.

2 Overview

Raz-Lee Security's DB-Gate, part of the iSecurity suite, lets you open concurrent and transparent SQL connections to numerous types of remote data sources and databases. You can do this on any IBM or non-IBM platform using STRSQL and compile using CRTSQL for programs which refer to these databases.

DB-Gate is a client-only product, so it saves you both money and time you would otherwise require to integrate new hardware or set up a complicated API.

System Requirements

DB-Gate requires the V5R3 operating system or higher.

Starting DB-Gate

To begin using DB-Gate, type **STRDB** on any command line. The **DB Gate main** screen is displayed as shown below in Figure 2-1 on page 6.

You can access the different features from the main DB-Gate screen. The various feature groups are described in the following chapters:

- Remote DB Definitions
- DB Drivers
- Activity Log
- General Configuration and Maintenance

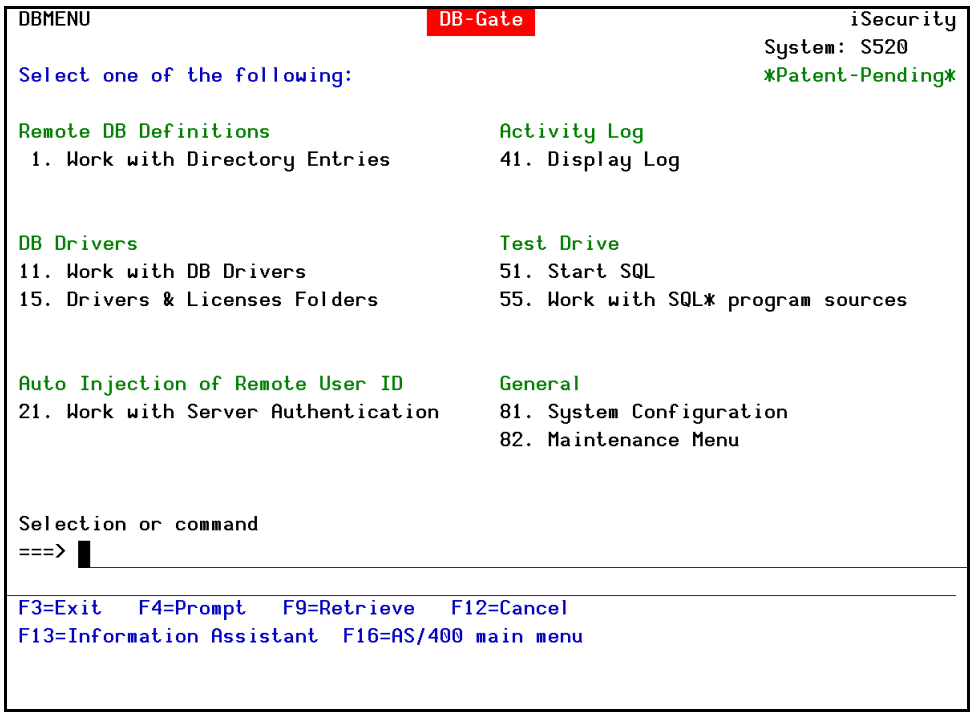


Figure 2-1. DB Gate Main Screen

Why You Need DB-Gate

IBM AS/400 users often require access to remote, non-DB2 databases that do not support DRDA server behavior, such as Oracle, MS-SQL and Derby. These databases run on various operating systems and use standard languages (i.e. SQL).

Typical Remote Access Limitations

To successfully access remote databases, companies have selected products based on either of the following limited methods:

- Using ambiguous or non-standard APIs that are not defined through RDBDIRE (relational Database Directory Entry) and therefore make no use of an ARD program.
- Selecting a client-server configuration that requires additional hardware.

These options are cumbersome and require special settings which often prevents the user from fully utilizing standard SQL commands on the AS/400 and often include hidden infrastructure costs as well.

DB-Gate Benefits

- “Opens” the entire non-DB2 spectrum of databases.
- Greatly expands programmer’s capabilities when working with non-DB2 databases.
- Reduces the need for redundant data and ETL (extract, transformation, load) data manipulation products Eliminates the need for *SQLPKG, even when accessing another DB2 database (including one on the AS/400).
- Unique technology enables transparent access to any database (MySQL, ORACLE, MS SQL, DB2, Informix, SQLite) or data source (e.g., Excel) which resides on any IBM or non-IBM platform using STRSQL or programs in languages such as RPG, Cobol, etc. (compiled using CRTSQL...).
- Integration with the STRSQL lets you prompt to see the Column names and more, and expands IBM i-based DRDA functionality by enabling transparent connectivity with JDBC databases not supported by DRDA.
- Uses standard SQL syntax and is based upon standard OS/400 functionality – so there is virtually no learning curve to get up and running Remote Server Authentication that makes use of the IBM Server Authentication Entries, injecting them seamlessly when needed and eliminating the need to remember and re-enter a user name and password for each CONNECT to a remote DB Provides detailed traceability logs.
- Uses standard SQL syntax and is based upon standard OS/400 functionality - so there is virtually no learning curve.
- Use of the IBM Server Authentication Entries, injecting user and password seamlessly when needed and eliminating the need to remember and re-enter a user name and password for each CONNECT to a remote DB.

DB-Gate Restrictions

The following functions are not supported:

- Database large objects (BLOBs, CLOBs, DBCLOBs)
- Data links
- User IDs longer than ten characters
- Passwords longer than ten characters
- Stored procedure result sets
- SQL statements longer than 32K
- Stored procedures with Commit on Return
- Scrollable cursors
- Multi-row input
- Extended diagnostics
- RDB aliases

Commitment Control

NOTE: When using an ARDPGM, the system enforces the use of commitment control. If for example session attributes for commitment control is set to *NONE, the system will change this setting immediately after the connection.An RDB entry that is based on ARDPGM is always considered as a remote connection and thus cannot be assigned *NONE or *NC for commitment control as shown below in Figure 2-2 on page 8.

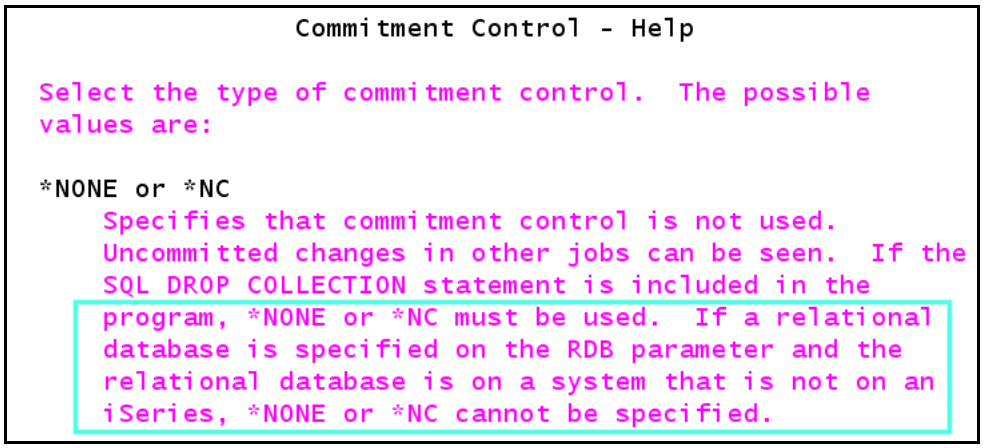

Commitment Control - Help
Select the type of commitment control. The possible values are:
*NONE or *NC
Specifies that commitment control is not used. Uncommitted changes in other jobs can be seen. If the SQL DROP COLLECTION statement is included in the program, *NONE or *NC must be used. If a relational database is specified on the RDB parameter and the relational database is on a system that is not on an iSeries, *NONE or *NC cannot be specified.

Figure 2-2. Commitment Control - Help

Native OS 400 Text Based User Interface

DB-Gate is designed to be a user-friendly product. The user interface follows standard System i CUA conventions. All product features are available via the menus, so you are never required to memorize arcane commands. Many features are also accessible via the command line, for the convenience of experienced users.

Menus

Product menus allow for easy access to all features with a minimum of keystrokes. Menu option numbering and terminology are consistent throughout this product as well as other Raz-Lee products. To select a menu option, simply type the option number and press Enter. The command line is available from nearly all product menus. If the command line does not appear (and your user profile allows use of the command line), press **F10** to display it.

Data Entry Screens

Data entry screens include many convenient features such as:

- Pop-up selection windows
- Convenient option prompts
- Easy-to-read descriptions and explanatory text for all parameters and options
- Search and filtering with generic text support.

The following describes the different data entry screens.

- To enter data in a field, type the desired text and then press **Enter** or **Field Exit**.
- To move from one field to another without changing the contents press **Tab**.
- To view options for a data field together with an explanation, press **F4**.
- To accept the data displayed on the screen and continue, press **Enter**.

Table 2-1 on page 10 describes the function keys that may appear on data entry screens.

Table 2-1: Functions Keys

Function Key	Description
F1 - Help	Displays context-sensitive help.
F3- Exit	Ends the current task and returns to the screen or menu from which the task was initiated.
F4 - Prompt	Displays a list of valid options for the current field or command. For certain data items, a pop-up selection window appears.
F6 - Add New	Creates a new record or data item.
F8 - Print	Prints the current report or data item.
F9 - Retrieve	Retrieves the previously-entered command.
F12 - Cancel	Returns to the previous screen or menu without updating.

New Features and Functionality

Version 2.1

The following improvements have been made in this version:

- A path relative to DB-Gate default driver's location can be used for for specifying drivers' files (in addition to absolute path).
- Internal JDBC driver for PC files:
  - Improved calculation of the length of fields
  - Added a link to the manual in the driver's screen
  - Improved Excel xlsx format handling
- Server mode now works with single data queue. This data queue can be recreated via the Activation menu
- PC installer for mode #3 (DB-Gate as an external server).
- Can run as an internal server on the IBM i, thereby eliminating the JVM starting time.
- Can run as an external server on a PC, Unix or other platform supporting Java rather than using resources on the IBM i.
- Keep alive statement is sent repeatedly
- Support for SMB protocol to allow access to Excel/CSV files on shared folder.
- Added support for reading Excel 2007-2010 (XLSX) formats.
- Running on a PC enables DB-Gate to work with additional data sources by employing the JDBC-ODBC bridge. That means for example that we can get data from MS Access.
- Enhancements made to better support embedded SQL in RPG/COBOL.
- Added Bidi String Type option (-1 = NONE) in RDB entry screen.
- The product is bundled with a new JDBC driver for MS Excel (97/2000/XP/2003/2007/2010), CSV, ODF spreadsheet (LibreOffice/OpenOffice) and text files. This driver is an in house development. See Appendix A for a description of how to use it.
- Support added for NVARCHAR field type.

3 Activation

Overview

DB-Gate can be activated to run in either:

- Mode 1 - Inline Running in the same job which requires external DB access.
- Mode 2 - Internal Server Running on a separate subsystem in the IBM i. This server supports any number of jobs.
- Mode 3 - External Server Running in an external system (consumes the processing power of a different computer). This server supports any number of jobs.

The functionality of DB-Gate is the same regardless of the mode run. No changes are required in the programs running on the IBM i. The choice of mode selected can be made at any stage.

Figure 3-1 on page 11 describes the architecture of the 3 run modes.

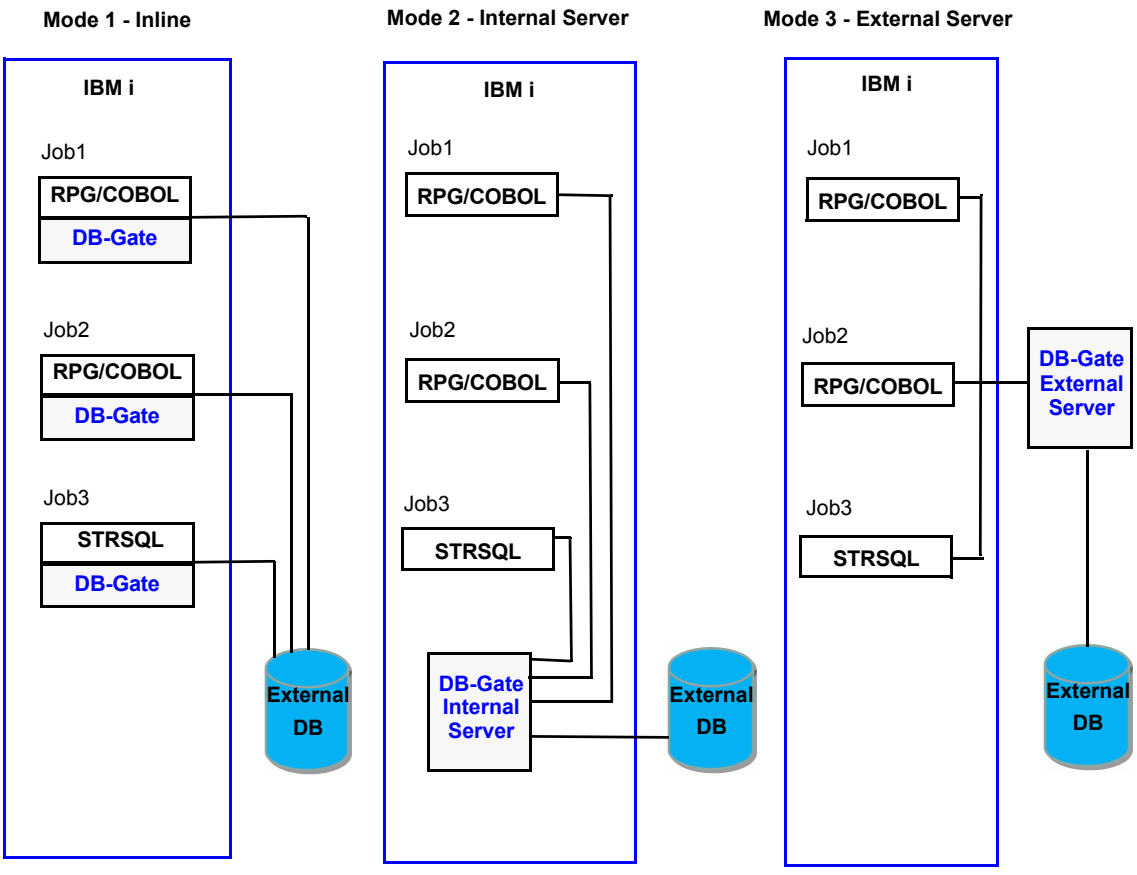


Figure 3-1. Run Mode Architecture

Mode 1 - Inline

Activation

DB-Gate runs the internal mode by default. No pre-activation is required. Note that first SQL command within a job activates, within DB-Gate, a process which may require a few seconds depending on available computing resources.

Mode 2 - Internal Server

DB-Gate runs as server job on a dedicated subsystem. This subsystem must be started before processing any SQL statement. The product can be configured to start this subsystem automatically after every IPL.

This mode has no initial extra processing and requires fewer memory resources.

Before You Begin

1. Have your organization's IT Administrator ensure that all SQL jobs using DB-Gate are signed off.
2. Set a password for the user profile **SECURITYBP** (which initially has a password of ***NONE**).

Activation

To activate DB-Gate to run in Internal Server Mode (2):

1. Ensure DB-Gate mode is set to Internal Server (2) as follows:
   a. Go to the DB-Gate Main screen and select **81 - System Configuration** to open that screen as shown in Figure 3-2 on page 13.

```
DBPARMR            DB Directory Entry System Configuration   26/04/13 00:31:55

Select one of the following:

DB-Gate
 1. General Definitions


 9. Log Retention




                                          General
                                            98. Driver Licenses
Selection ===>   __                         99. Copyright Notice

Release ID . . . . . . . . . . . . . .  02.00 13-04-02    6561B7D  520 7140
Authorization code . . . . . . . . . .  B01304776591                1   BERT

F3=Exit    F22=Enter Authorization Code                        F12=Cancel
Modify data, or press Enter.
```

Figure 3-2. DB Directory Entry System Configuration Screen

   b. Select **1 - General Definitions** to open that screen as shown in Figure 3-3 on page 13.

```
                          General Definitions              28/04/13 09:24:38

Type options, press Enter.

Run mode  . . . . . . . . . . . . . . .  2       1=Inline (no pre-activation)
                                                 2=Internal server
                                                 3=External server

For Run mode=2, set any password to user profile SECURITYBP to enable the
initiation of the Internal Server. This password does not have to be entered
anywhere in the product.
SQL Activities are always done by the actual user authority.

Auto Set Java version and CLASSPATH .  Y         Y=Yes, N=No
Java 1.5 or higher required; See CLASSPATH in /iSecurity/DB-Gate/sp.properties

Log level (errors are always logged)   5         1=No Log
                                                 2=Connects only
                                                 4=All (only first FETCH logged)


F3=Exit    F12=Cancel
```

Figure 3-3. General Definitions Screen

   c. Set the **Run mode** to **2** (if set to another mode) and press **Enter** continuously (usually 2 or 3 times) to return to the DB-Gate Main screen.

2. Activate the server so follows:
   a. Select **2 - Activation** to open that menu as shown in Figure 3-4 on page 14.

```
DBSETMN                          Activation                        DB-Gate
                                                          System:   S520
DB-Gate can function in server mode, which requires pre-activation.
The actual operation mode is set in System Configuration on Main Menu.

Internal Server Mode                    External Server Mode
 1. Activate Server                     Activation / De-activation is performed
 2. De-activate Server                  on the external server.
 5. Work with Active Jobs               See manual for details.

11. Activate Server at IPL
12. Do Not Activate Server at IPL

Special
71. Recreate Data Queue

Note that Inline Mode does not require pre-activation.

Selection or command
===>

F3=Exit    F4=Prompt    F9=Retrieve    F12=Cancel
F13=Information Assistant  F16=AS/400 main menu
```

Figure 3-4. Activation Screen

   b. Select **1 - Activate Server**. DB-Gate begins to operate in Internal Server Mode. A message appears at the bottom of the screen indicating
   c. Select **5 - Work with Active Jobs** to verify that DB-Gate is working. The **Work with Subsystem Jobs** screen appears and displays active Subsystem Jobs and their status as shown in Figure 3-5 on page 14.

```
                          Work with Subsystem Jobs                 S520
                                                          25/04/13  12:51:19
Subsystem  . . . . . . . . . . . :   ZDBGATE

Type options, press Enter.
  2=Change    3=Hold    4=End    5=Work with    6=Release    7=Display message
  8=Work with spooled files    13=Disconnect

Opt  Job          User         Type      -----Status-----  Function
     DBMONITOR    SECURITYBP   AUTO      ACTIVE            PGM-DBSRVR

                                                                      Bottom
Parameters or command
===>
F3=Exit       F4=Prompt    F5=Refresh    F9=Retrieve    F11=Display schedule data
F12=Cancel    F17=Top      F18=Bottom
```

Figure 3-5. Work with Subsystem Jobs Screen

Automatic Activation upon Startup

The Internal Mode can be set to automatically activate upon startup of the IBM System Initial Program Load (IPL) from the **Activation** screen (See Figure 3-4 on page 14).

- To enable automatic activation, select **11 - Activate Server at IPL**.
- To disable automatic activation, select **12 - Do Not Activate Server at IPL**.
- You can verify automatic activation status by typing **DSPJOBLOG** at the command prompt.

Mode 3 - External Server

DB-Gate runs as server process on a different computer. That computer and the DB-Gate service running on it must be activated before any SQL processing is initiated.

The computer running this server mode can run on Windows, Unix/Linux and any other operating system that supports Java. This mode has no initial extra processing and requires virtually no extra memory resources from the IBM i. All memory resources and processing power are consumed on the external computer running the DB-Gate server.

It is the user's responsibility to ensure activation of the computer and server running the external DB-Gate.

1. Install the DB-Gate server as follows:
   a. Close all applications.
   b. Run the setup file **DB-Gate_setup.exe**. The installation wizard opens.

Setup - DB-Gate Server
Welcome to the DB-Gate Server Setup Wizard
This will install DB-Gate Server 2.0.1 on your computer.
It is recommended that you close all other applications before continuing.
Click Next to continue, or Cancel to exit Setup.
Next >
Cancel

Figure 3-6. DB-Gate Server Setup Wizard - Welcome Screen

c. Proceed through the Wizard choosing the destination path, name and shortcut settings and click **Install** on the **Ready to Install** screen. See Figure 3-7 on page 16.

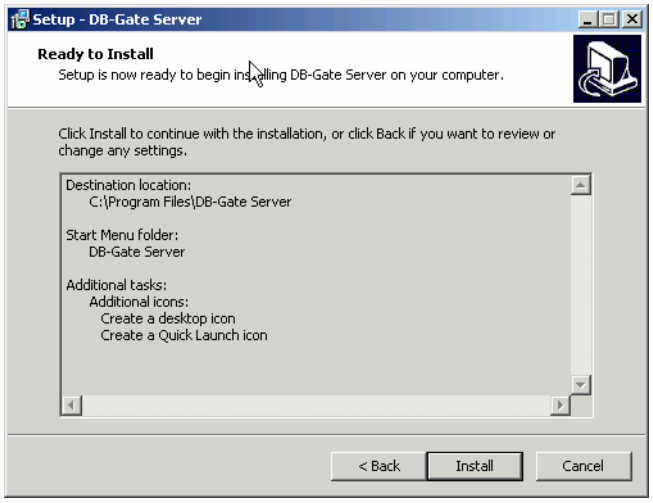

Setup - DB-Gate Server
Ready to Install
Setup is now ready to begin installing DB-Gate Server on your computer.
Click Install to continue with the installation, or click Back if you want to review or change any settings.
Destination location:
C:\Program Files\DB-Gate Server
Start Menu folder:
DB-Gate Server
Additional tasks:
Additional icons:
Create a desktop icon
Create a Quick Launch icon
< Back
Install
Cancel

Figure 3-7. Ready to Install Screen

d. Upon completion select **Launch DB-Gate Server** and click **Finish**.

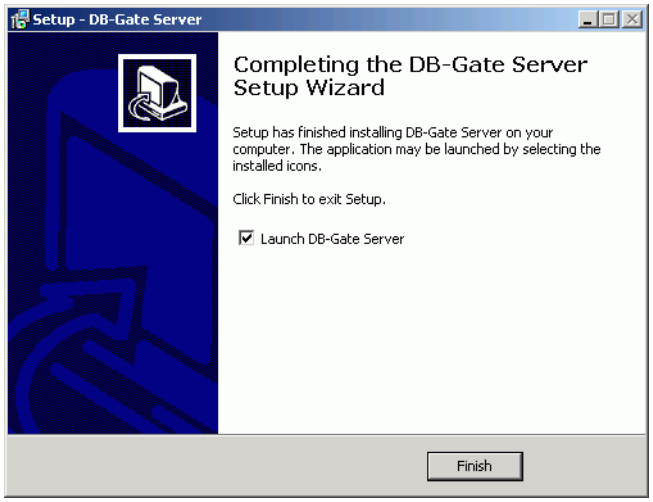

Setup - DB-Gate Server
Completing the DB-Gate Server Setup Wizard
Setup has finished installing DB-Gate Server on your computer. The application may be launched by selecting the installed icons.
Click Finish to exit Setup.
Launch DB-Gate Server
Finish

Figure 3-8. DB-Gate Server Setup Wizard - Finish Screen

The Connect to System dialog appears. See Running the DB-Gate Server on page 17.

Running the DB-Gate Server

The DB-Gate server is started either by:

- Selecting Launch the DB-Gate server at the end of the installation process
- Starting the DB-Gate server from the Windows **Start** menu or the icon.

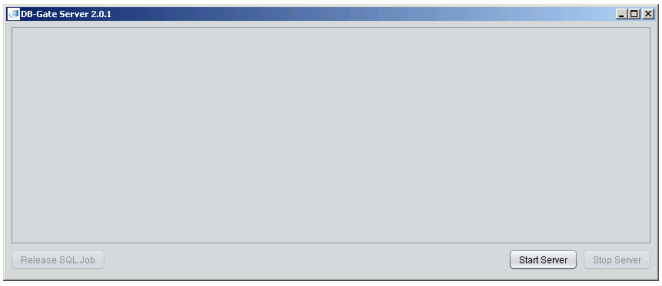


Figure 3-9. DB-Gate Server Startup Screen

1. Click **Start Server**. The **Connect To System** dialog appears. See Figure 3-10 on page 17.
2. Connect to the system as follows:
   a. Type the address (IP or network path) or host name for the DB-Gate server
   b. Type the **User** and **Password** to access that host.
   c. Click **OK**.

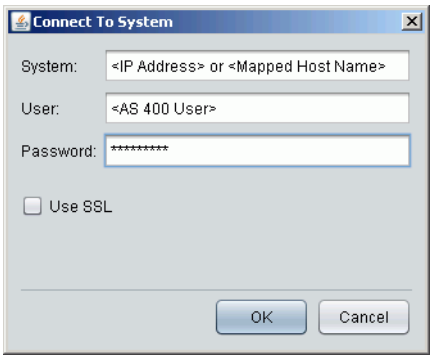


Figure 3-10. Connect to System Dialog

3. Login to the IBM i.
4. Start SQL by typing **STRSQL**.
5. Connect to the SQL database instance as shown in Figure 3-11 on page 18.

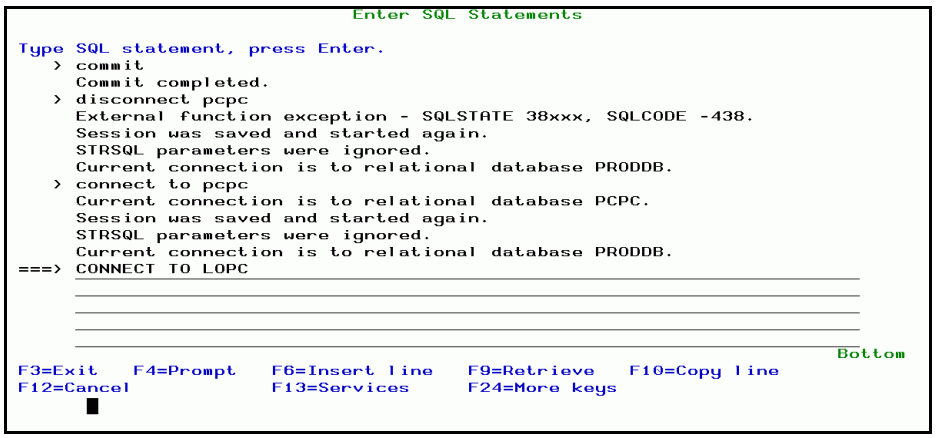

Enter SQL Statements
Type SQL statement, press Enter.
> commit
Commit completed.
> disconnect pcpc
External function exception - SQLSTATE 38xxx, SQLCODE -438.
Session was saved and started again.
STRSQL parameters were ignored.
Current connection is to relational database PRODDB.
> connect to pcpc
Current connection is to relational database PCPC.
Session was saved and started again.
STRSQL parameters were ignored.
Current connection is to relational database PRODDB.
===> CONNECT TO LOPC
Bottom
F3=Exit F4=Prompt F6=Insert line F9=Retrieve F10=Copy line
F12=Cancel F13=Services F24=More keys

Figure 3-11. Connecting to Database Instance

6. Open the DB-Gate Server GUI by double-clicking on the icon or through the start menu. The options are described in DB-Gate Server Commands on page 18.

DB-Gate Server Commands

The DB-Gate **Connected To [Database]** screen indicates active jobs connected to the DB-Gate server. See Figure 3-12 on page 18 and Table 3-1 on page 18 for a description of the relevant parameters and options.

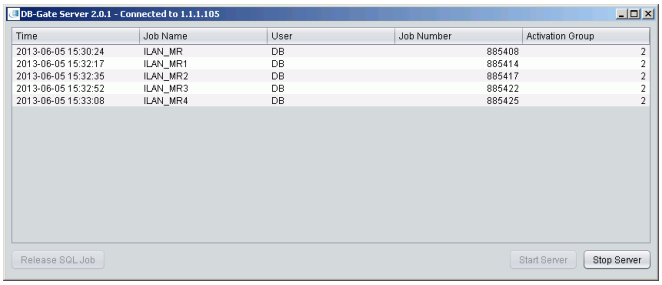


Figure 3-12. Database Connection Screen

Table 3-1: Database Connection Parameters and Options

Button / Column	Description
Release Job	Stops the selected job.
Stop Server	Deactivates the DB-Gate Server.
Job Name	Name of the job.
User	User who initiated the job
Job Number	Number of the job
Activation Group	Activation Group number in which the application is running.

Each job consist of one or more activation groups and it's important to note that DB-Gate operates on the level of Activation Group. Therefore the same job attributes can appear more than once but in different Activation Groups. An example is provided in Table 3-2 on page 19

Table 3-2: Sample List of Connections

Job Name	User	Job Number	Activation Group
QPADEV0010	DB	123456	2
QPADEV0010	DB	123456	3

Changing the DB-Gate Mode of Operation

The mode of operation can only be changed when no active SQL process is running in DB-Gate. It is recommended to change the mode of operation in conjunction with IPL.

To change the Run mode:

1. Notify all relevant users that you are about to stop and change the current Run mode.
2. Make sure all SQL jobs running through DB-Gate are signed off.
3. If DB-Gate is currently running in Server mode (2 or 3), stop the server.
4. Go the General Definitions screen (81) and set the new Run Mode.
5. Start DB-Gate:
   - For Inline Mode (1) no further action is necessary.
   - For Internal Server Mode (2), activate as described in Activation on page 12.
   - For External Server Mode (3), activate as described in Activation on page 13.

Data Queues

DB-Gate uses a a data queue for communication when operating in server mode (2 or 3). You can recreate this data queue (delete and build) using option **71** in the Activation screen (see Figure 3-13 on page 20). This maintenance task is useful when the data queue becomes too large. This task action should be only be performed while the server is down and there are no SQL jobs employing DB-Gate.

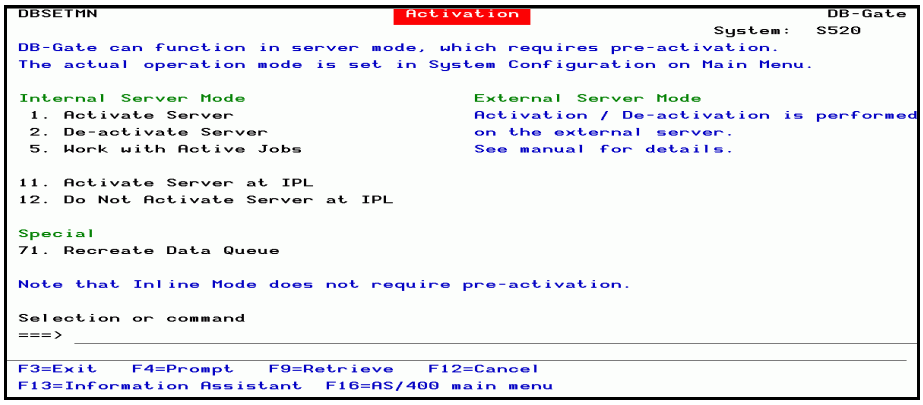

DBSETMN
Activation
DB-Gate
System: S520
DB-Gate can function in server mode, which requires pre-activation.
The actual operation mode is set in System Configuration on Main Menu.
Internal Server Mode
1. Activate Server
2. De-activate Server
5. Work with Active Jobs
External Server Mode
Activation / De-activation is performed
on the external server.
See manual for details.
11. Activate Server at IPL
12. Do Not Activate Server at IPL
Special
71. Recreate Data Queue
Note that Inline Mode does not require pre-activation.
Selection or command
===>
F3=Exit F4=Prompt F9=Retrieve F12=Cancel
F13=Information Assistant F16=AS/400 main menu

Figure 3-13. Activation Screen

4 Remote DB Definitions

This chapter describes how to define a remote database.

When definitions are activated, they create an RDBDIRE (Remote DB Directory Entry) in the operating system.

Working with Directory Entries

To begin working with directory entries, select **1 - Work with Directory Entries** from the main screen.

The **Work with Directory Entries** screen opens as shown in Figure 4-1 on page 21. Directories are marked as Active or (deactivated). You can perform the following activities:

- Viewing Subsets of Drivers
- Modifying a Directory Entry
- Copying an Existing Directory Entry
- Creating a New Directory Entry
- Removing a Directory Entry
- Activating a Directory Entry
- Deactivating a Directory Entry

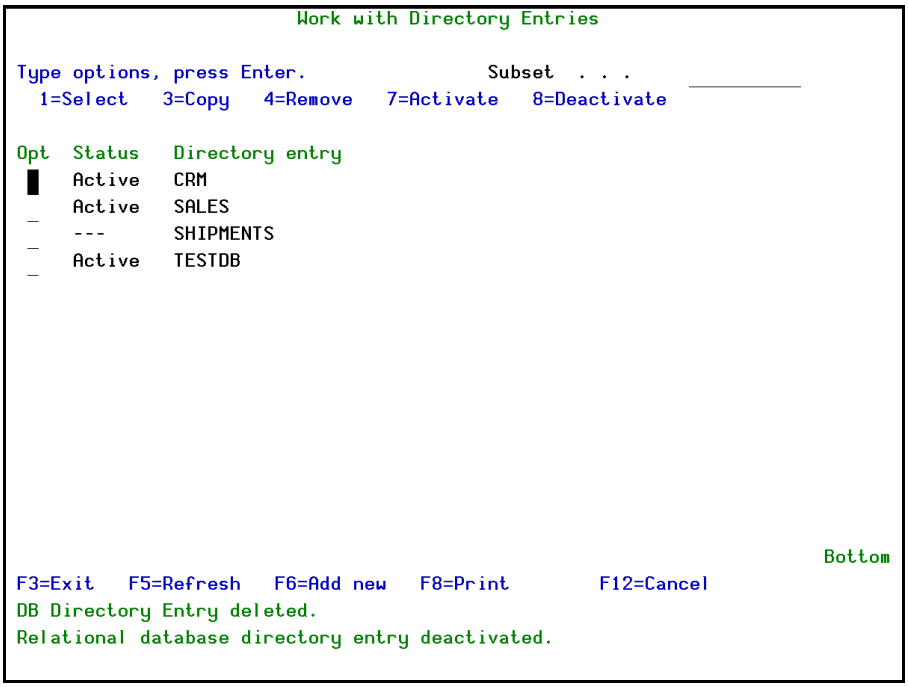
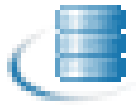


Figure 4-1. Work with Directory Entries



Viewing Subsets of Drivers

To view a specific subset of drivers, type the first alphanumeric characters of the driver in the **Subset by driver** field and **press Enter**.

The driver list is redisplayed with results that match your query.

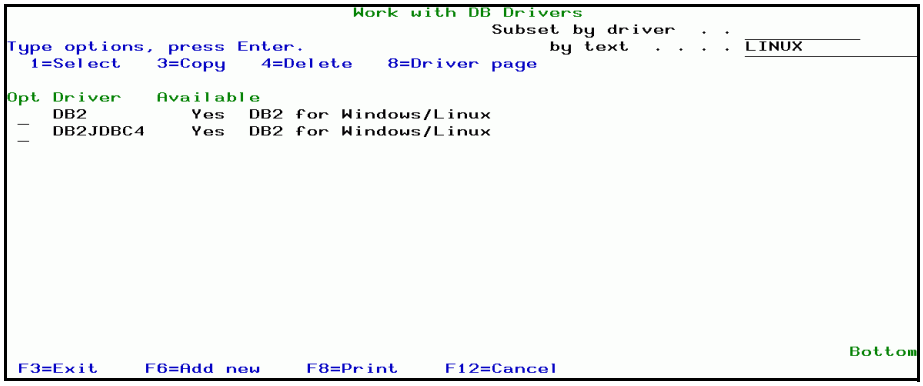

Work with DB Drivers
Subset by driver . .
Type options, press Enter. by text . . . . LINUX
1=Select 3=Copy 4=Delete 8=Driver page
Opt Driver Available
DB2 Yes DB2 for Windows/Linux
DB2JDBC4 Yes DB2 for Windows/Linux
Bottom
F3=Exit F6=Add new F8=Print F12=Cancel

Figure 4-2. Work With DB Drivers

Modifying a Directory Entry

You can update all directory entries except for the names of the Directory.

To modify the details of a Directory Entry:

1. Type **1** in the **Opt** column to select it and press **Enter**.

   The **Modify Directory Entry** screen appears with the selected directory entry filled in as shown in Figure 4-3 on page 23.

```
                          Modify Directory Entry

Directory Entry . . . . . .  LOGISTICS     Active: Y      (Driver: MSSQL2005  )
Description . . . . . . . .  This is a MS SQL
Log . . . . . . . . . . . .  0                    0=Dft, 1=None, 2=Basic, 4=All
Host or IP  . . . . .<host>  1.1.1.197
Port  . . . . . . . .<port>   1433
Catalog . . . . . <catalog>
Schema  . . . . . .<schema>
Database  . . . . . . .<db>  AdventureWorks




URL . . . . . . . . . . . .  jdbc:sqlserver://<host>:<port>;databaseName=<db>
Auto replacments are:
  <host><port><catalog>
  <schema><db><adl1-4>


Language Support  . . . . .      4              *AUTO, *NONE, 4-11 for Bidi
F3=Exit    F4=Prompt    F7=Driver page    F8=Replace driver    F12=Cancel
```

```
                      Modify Directory Entry - Part B

Directory entry . . . . . .  ORACLE                        (Driver: ORACLE_SID )
Description . . . . . . . .

Language support  . . . . .  *AUTO               *AUTO, *NONE, 4-11 for Bidi
Keep alive interval . . . .      5               Minutes, 0=No
Keep alive statement  . . .  SELECT * FROM DUAL


                                                                        Bottom
F3=Exit    F12=Cancel
```

Figure 4-3. Modify Directory Entry Screen

Table 4-1 on page 23 describes the detailed information you enter to create a new RDB Entry. Some of the parameters may vary depending on the selected driver.

Table 4-1: RDB Entry Parameters

Parameter	Description / Options
Directory Entry	Name of the directory
Active	**Y** (yes) or **N** (no)

Table 4-1: RDB Entry Parameters

Parameter	Description / Options
Driver	The driver you associated with the new entry
Description	Description of the directory (optional)
Log	**0**=Global default (this value is taken from System Configuration's General Definitions screen) **1**=No log (no data is stored) **2**=Connect (the log will store a record of each connection and disconnection from a database) **4**=All (the log will store all commands sent; when a Fetch command is sent, it will only store the first in the series)
Host or IP	The address used to access the remote database
Port	The port number associated with the above address required for setting up a connection to the remote database
Catalog	If the database requires a Catalog for the connection, specify it here
Schema	The schema for the remote database
Database	Database name
Additional parameters: SID in this example	Up to four different parameters, based on the selected driver.
URL	Provided by the DB driver provider. May include parameters: **<host><ip><user><pwd><catalog><port><schema><adl1-4>**
Language Support	***AUTO =** Default setting ***NONE** **4-11** = Based on an IBM setting for specific language support.
Keep alive interval	Frequency the keep alive SQL statement is sent to DB to ensure connection is maintained.
Keep alive statement	SQL statement sent to DB to ensure connection is maintained.
F8	**Replace Driver** = Enables users to replace the driver configuration for this RDB entry

Copying an Existing Directory Entry

You can choose to add a new Directory Entry by copying one that already exists. Copying a directory entry is also the only way you can change the name of an existing directory entry.

To copy an existing directory:

1. Highlight it and select **3 - Copy.**

   The **Copy DB Directory Entry** screen appears with the selected directory entry appearing in both the **From** and **To:** / **Directory Entry** fields, as shown in Figure 4-4 on page 25.
2. Modify the **To:** / **Directory Entry** description and press **Enter** twice.

```
                          Copy DB Directory Entry

Type choices, press Enter.

From:
  Directory Entry  . . . . . MSACCESS

  Description  . . . . . .

To:
  New Directory Entry  . . . MSACC COPY




F3=Exit     F4=Prompt          F12=Cancel

Modify data, or press Enter to confirm.
```

Figure 4-4. DBG Copy Directory Entry Screen

All the existing directory entry details are automatically added and the **Work with Directory Entries** screen is redisplayed with the newly created directory entry in deactivated status. See Figure 4-5 on page 25.

```
                        Work with DB Directory Entries          Allowed: No limit

Type options, press Enter.                    Subset  . . .
  1=Select   3=Copy   4=Remove   7=Activate   8=Deactivate

Opt  Status   Directory entry
     Active   ALEX        TEST ALEX
 _   Active   A150
 _   Active   A520
 _   Active   LO
 _   Active   LOPC
 _   Active   MS          This is a MS SQL
 _   Active   MS_JTDS
 _   Active   MS_ROB      This is a MS SQL
 _   ---      MSACC COPY
 _   Active   MSACCESS
 _   Active   MSPC        This is a MS SQL
 _   Active   MY
 _   Active   MYFED
 _   Active   MYH2
 _                                                                    More...
F3=Exit   F5=Refresh   F6=Add new   F8=Print        F12=Cancel
Directory Entry copied.
```

Figure 4-5. Work with Directory Entries Screen

Creating a New Directory Entry

You can choose to add a new Directory Entry either by copying one that already exists or by entering all the details on your own.

To create a new directory entry:

1. Select **F6 - Add New** to open the **Add New Directory Entry** screen.
2. Add a Directory Entry by doing one of the following:
   - Type the new **Directory Entry** alias name.
   - Select **F4 - Prompt** (while in the Directory Entry field) to display the existing Directory Entry list. Select the **Directory Entry** by typing 1 next to it. Press **Enter**. The selected Directory Entry is added to the new Directory Entry field.See Figure 4-6 on page 26.

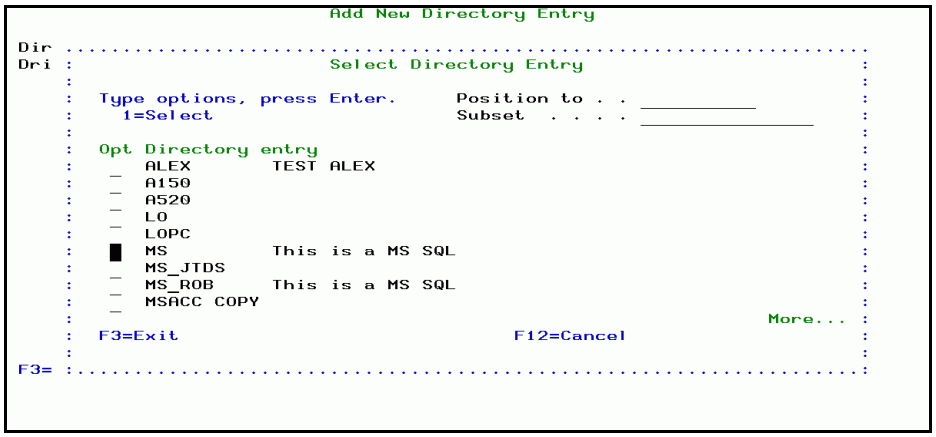


Figure 4-6. DBG Add New Directory Entry

3. Add an existing driver type either by typing it or using the **F4 - Prompt** (when in the Driver field) to display a list of the existing DB drivers.
4. Click **Enter** to move on to the empty **Add New Directory Entry Details** screen.

   This screen is the same as the **Modify Directory Entry** screen above as shown in Figure 4-3 on page 23.

NOTE: If the URL is already saved in the driver, it is automatically added.

Removing a Directory Entry

To remove a Directory Entry:

1. In the **Work with DB Directories** screen, select the directory to be removed by typing a **4** next to it and pressing **Enter**.

   The **Delete Directory Entry - Part A** screen appears with the Directory Entry details.
2. Press **Enter**, and then again **Enter** when the **Delete Directory Entry - Part B** screen appears to confirm.

   The **Work with DB Directory Entries** screen reappears with the Directory Entry removed.

Activating a Directory Entry

To activate a Directory Entry:

1. In the **Work with DB Directories** screen, select the directory to be removed by typing a **7** next to it and pressing **Enter**.
2. The Directory Entry is activated.

Deactivating a Directory Entry

To deactivate a Directory Entry:

1. In the **Work with DB Directories** screen, select the directory to be removed by typing a **8** next to it and pressing **Enter**.
2. The Directory Entry is deactivated.

5

DB Drivers

Working with Database Drivers

A database driver enables you to access a remote database, first by recognizing it and then by establishing a connection with it.

DB-Gate comes with pre-installed DB drivers. The default path for drivers is:

/iSecurity/DB-Gate/Drivers

You can enter a full path or a path relative to DB-Gate default driver's location as shown in Figure 5-1 on page 29.

Figure 5-1. Modify DB Driver - Full and Relative Paths

You may add any number of additional drivers or modify the existing ones.

To set up a database driver:

1. Select **11 - Work with DB Drivers** from the Main Menu.

   The **Work with DB Drivers** screen as shown in Figure 5-2 on page 30 with a three-column list of the different types of database already entered in the system is displayed.
2. You can choose to create a remote connection from this screen which includes the following details:

   Driver Name **Available – Yes** indicates that the driver's Driver file parameter (in the **Modify DB Driver** screen as shown in Figure 5-3 on page 31) has been filled in with the path to the jar file on the IFS.

Description for the driver

```
                          Work with DB Drivers
                                          Subset by driver  . .
Type options, press Enter.                     by text  . . . .
  1=Select   3=Copy   4=Delete   8=Driver page

Opt Driver   Available
_   AS400DB2    Yes  DB2 on OS/400 platform
_   CACHE        -   Cache
_   DAFFODILLO   -   DaffodilDB Local
_   DAFFODILSR   -   DaffodilDB Server
_   DB2         Yes  DB2 for Windows/Linux
_   DB2JDBC4    Yes  DB2 for Windows/Linux
_   DERBY       Yes  JavaDB/Derby
_   FIREBIRD    Yes  Firebird
_   FRONTBASE   Yes  FrontBase
_   HSQLDB      Yes  HSQLDB
_   HSQLDBEMBD  Yes  HSQLDB Embedded
_   H2_EMBED    Yes  H2 Database Engine (Embedded)
_   H2_MEM      Yes  H2 Database Engine (In memory mode)
_   H2_SERVER   Yes  H2 Database Engine (Server mode)
_                                                          More...
F3=Exit    F6=Add new    F8=Print    F12=Cancel
```

Figure 5-2. Work with DB Drivers

If the URL for the driver manufacturer has been saved within the driver's details, you can open the driver's web page in your browser and read detailed information on the database.

To do this, select **8 - Driver** page and then press **Enter**.

To view a specific subset of drivers, do one of the following:

1. In the Subset by driver field, at the top right of the screen, enter the first alphanumeric characters of the driver and press **Enter**.

   The driver list is redisplayed with results that match your query.
2. In the Subset by text field, enter any alphanumeric characters you want to match in either the Driver Name or Description fields and press **Enter**.

   The driver list is redisplayed with results that match your query.

Modifying a DB Driver

To modify a DB driver, do the following:

1. Highlight the DB driver you want to update and press **1** - Select and then press **Enter**.
   The **Modify DB Driver** screen as shown in Figure 5-3 on page 31 opens with the driver's details.
2. Update the fields, then press **Enter**.
   A confirmation message appears asking if you want to modify any of the entries.
3. Press **Enter** again to save the changes to the driver.
   From within the driver page, you can view open the URL for the driver manufacturer to read detailed information on the DB driver by selecting **F7 - Drive**r page.

To restore the default settings of the current driver, select **F9 - Restore Default.**

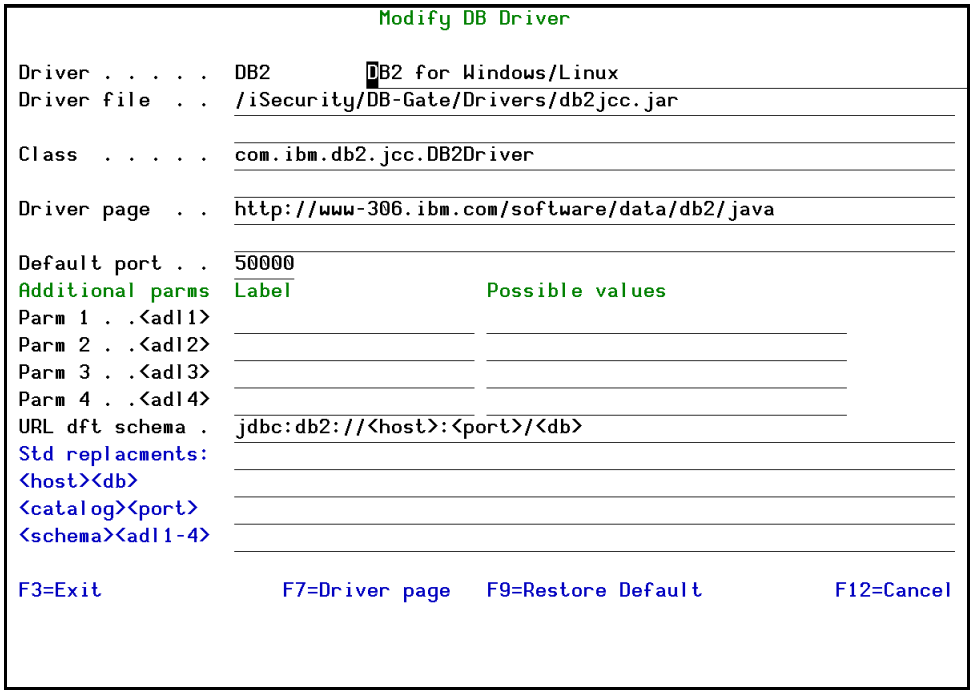


Figure 5-3. Modify DB Driver

The following table describes the information in the DB Driver screen.

Table 5-1: DB Driver Parameters and Commands

Parameter / Command	Description
Driver	Driver's name and description. It will appear in the DB Drivers list when configuring a connection.
Driver file	Path to the jar file on the IFS that contains the JDBC driver for this database.
Class	JDBC driver class name.
Driver page	URL for the driver developer's web-page.

Table 5-1: DB Driver Parameters and Commands

Parameter / Command	Description
Default port	The default port to use when setting up a connection.
Additional Parameters	You may define up to four parameters which are specific for this driver. The definition includes the label, as well as a short explanation or the possible values. Parameters which are defined here will be displayed when this driver is selected.
F4	When in the Driver field, displays a Select DB Driver window with the option to select a specific DB Driver. After entering **1 - Select**, the window closes and your selection is displayed in the Driver field.
F7	Once the Driver page has been entered, selecting **F7** opens the URL in your default browser.
F9	Restores the original definition of a driver if it was supplied alongside the DB-Gate and replaces the current settings.

Copying a DB Driver

To copy a DB driver, do the following:

1. Select the DB driver you want to copy, press **1 - Copy** and then press Enter.

   The **Copy DB Driver** screen opens with the name and description of the selected driver as shown in Figure 5-4 on page 33.
2. In the new Driver field, change the name and then press **Enter**.
3. After the confirmation message appears asking if you want to modify any of the entries, press **Enter** again to save the new driver.

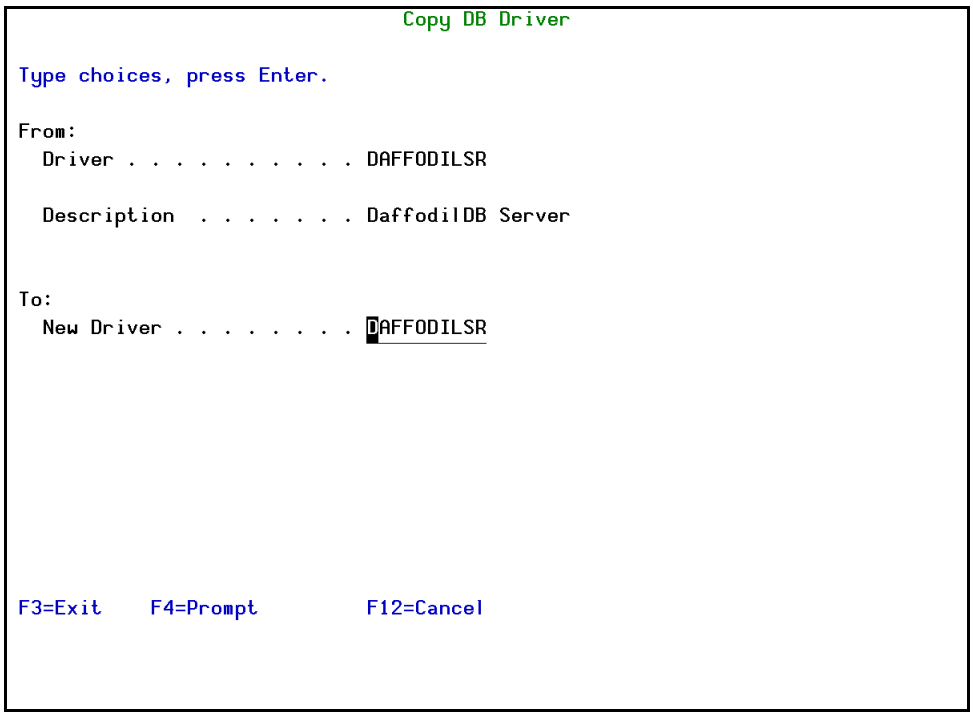

Copy DB Driver
Type choices, press Enter.
From:
Driver . . . . . DAFFODILSR
Description . . . . . DaffodilDB Server
To:
New Driver . . . . . DAFFODILSR
F3=Exit F4=Prompt F12=Cancel

Figure 5-4. Copy DB Driver

Adding a New DB Driver

To add a new DB driver:

1. From the **Work with DB Drivers** screen, press **F6**.

   An empty **Add New DB Driver** screen appears.
2. After you complete the fields, press **Enter**.
3. After the confirmation message appears asking if you want to modify any of the entries, press **Enter** again to save the new DB driver.

Deleting a DB Driver

To delete a DB driver from the list:

1. Select the DB driver and then select **4 - Delete**.
   The driver's page is displayed.
2. Press **Enter** to confirm the delete request.
   The driver is deleted.

Drivers & Licenses Folders

To view and update a connection to a remote database:

Select **15 - Drivers & Licenses** Folders from the main screen.
The **Work with Object Links** screen opens.
This resource screen lets you see the paths to the third party drivers and their licenses.

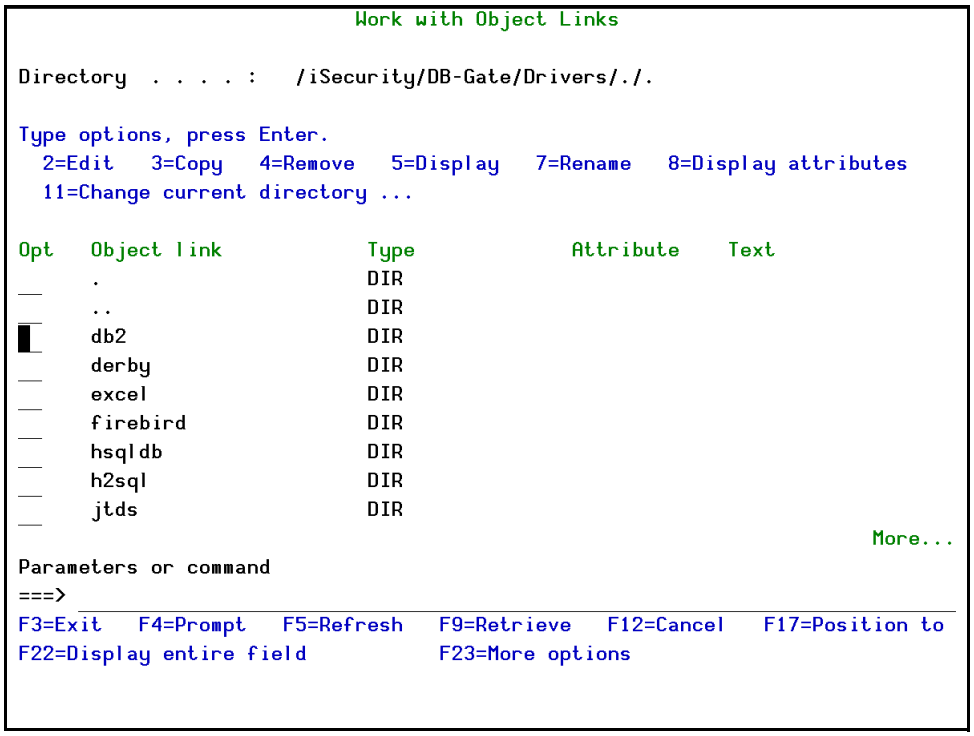


Figure 5-5. Work with Object Links

The drivers belong to the official owners. They are supplied alongside the product for convenience. Next to each driver you may find the actual license under which it is supplied. These drivers have been downloaded and are supplied by Raz-Lee with the understanding that they may be supplied in this way.

6 DB-Gate Log

DB-Gate's Display Log shows the contents of the history log, which saves various data gathered from the different directory entries as you have defined them, in a standard format and using basic filter criteria. The "Backward Glance" feature lets you look at the last several minutes of activity without the need to define specific time or date parameters.

To begin filtering log entries, select **41. Display Log** from the main menu. The following Display DB-Gate Log Entries screen is displayed.

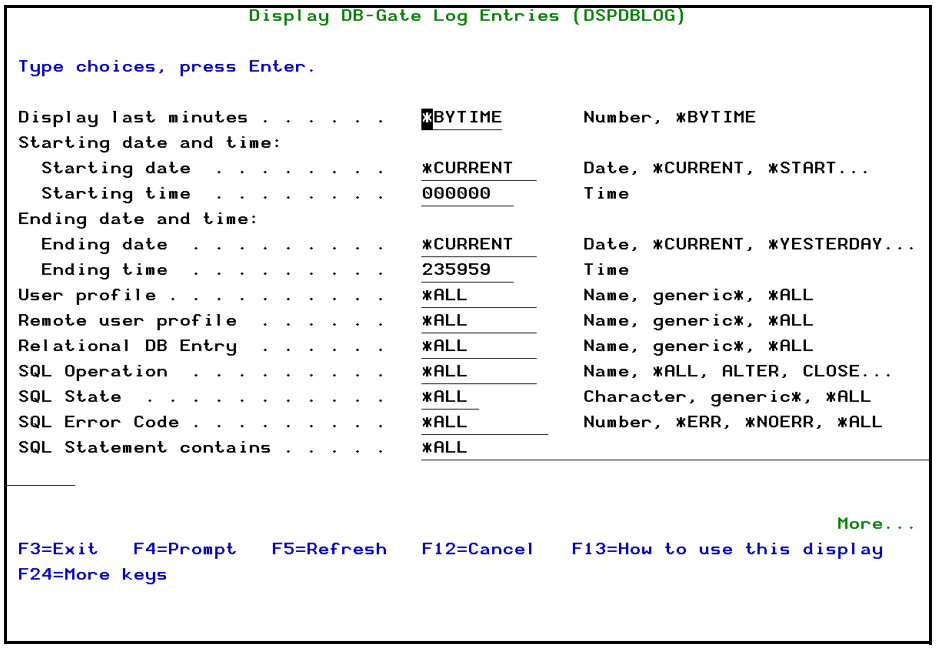

Display DB-Gate Log Entries (DSPDBLOG)
Type choices, press Enter.
Display last minutes . . . . . *BYTIME Number, *BYTIME
Starting date and time:
Starting date . . . . . *CURRENT Date, *CURRENT, *START...
Starting time . . . . . 000000 Time
Ending date and time:
Ending date . . . . . *CURRENT Date, *CURRENT, *YESTERDAY...
Ending time . . . . . 235959 Time
User profile . . . . . *ALL Name, generic*, *ALL
Remote user profile . . . . . *ALL Name, generic*, *ALL
Relational DB Entry . . . . . *ALL Name, generic*, *ALL
SQL Operation . . . . . *ALL Name, *ALL, ALTER, CLOSE...
SQL State . . . . . *ALL Character, generic*, *ALL
SQL Error Code . . . . . *ALL Number, *ERR, *NOERR, *ALL
SQL Statement contains . . . . . *ALL
More...
F3=Exit F4=Prompt F5=Refresh F12=Cancel F13=How to use this display
F24=More keys

Figure 6-1. Display DB-Gate Log Entries Screen (1)

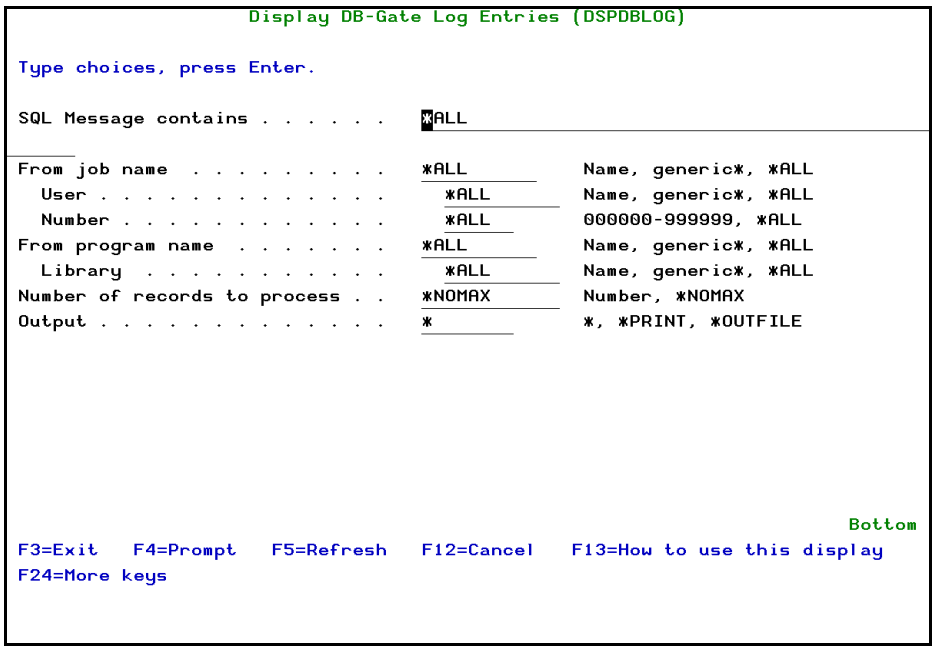

Display DB-Gate Log Entries (DSPDBLOG)
Type choices, press Enter.
SQL Message contains . . . . . *ALL
From job name . . . . . *ALL Name, generic*, *ALL
User . . . . . *ALL Name, generic*, *ALL
Number . . . . . *ALL 000000-999999, *ALL
From program name . . . . . *ALL Name, generic*, *ALL
Library . . . . . *ALL Name, generic*, *ALL
Number of records to process . . *NOMAX Number, *NOMAX
Output . . . . . * *, *PRINT, *OUTFILE
Bottom
F3=Exit F4=Prompt F5=Refresh F12=Cancel F13=How to use this display
F24=More keys

Figure 6-2. Display DB-Gate Log Entries Screen (2)

Table 6-1 on page 37 describes the various settings you can define to filter log entries.

Table 6-1: Filter Log Settings

Parameter	Description
Display last minutes	Number, ***BYTIME** This “Backward Glance” feature lets you enter the number of minutes of recent activity you want to view, without the need to define any other time or date parameters. The feature is particularly helpful when trying to clarify the cause of problems.
Starting date	Choose from: **Current, Start, Yesterday, Week Start, Previous Weeks, Month Start, Previous Months, Year Start, Previous Years,** and each day of the week
Starting time	00:00:00 format
Ending date	Same options as **Starting date**
Ending time	00:00:00 format
User profile	All (default) or a specific user profile on the AS/400
Remote user profile	All (default) or a specific user profile on the remote database
Relational DB Entry	All (default) or a specific remote DB entry
SQL Operation	All (default) or a specific SQL operation that is used at the beginning of an SQL statement (e.g., **CONNECT, CREATE, DROP**, etc.)
SQL State	All (default) or a specific state
SQL Error Code	All (default), a specific error code number or name that describes the problem, or entries without any error code
SQL Statement contains	All (default) or a specific SQL statement
SQL Message contains	All (default) or a specific error message that is associated with an error code
From job name	All (default) or specific job
User	All (default) or specific user
Number	All (default) or a specific number
From program name	All (default) or the program in the AS/400 that created this log
Library	All (default) or specific library of the program name
Number of records to process	No Maximum amount (NOMAX) or a specific number
Output	On the screen (*), Printed on one of the defined printers. If you enter **Outfile**, you must then define the following additional parameters: File to receive output, Library, Member to receive output, Replace or add records

Once you have defined the filter for the log, press **Enter** to view the results. The following screen is an example of the output displayed.

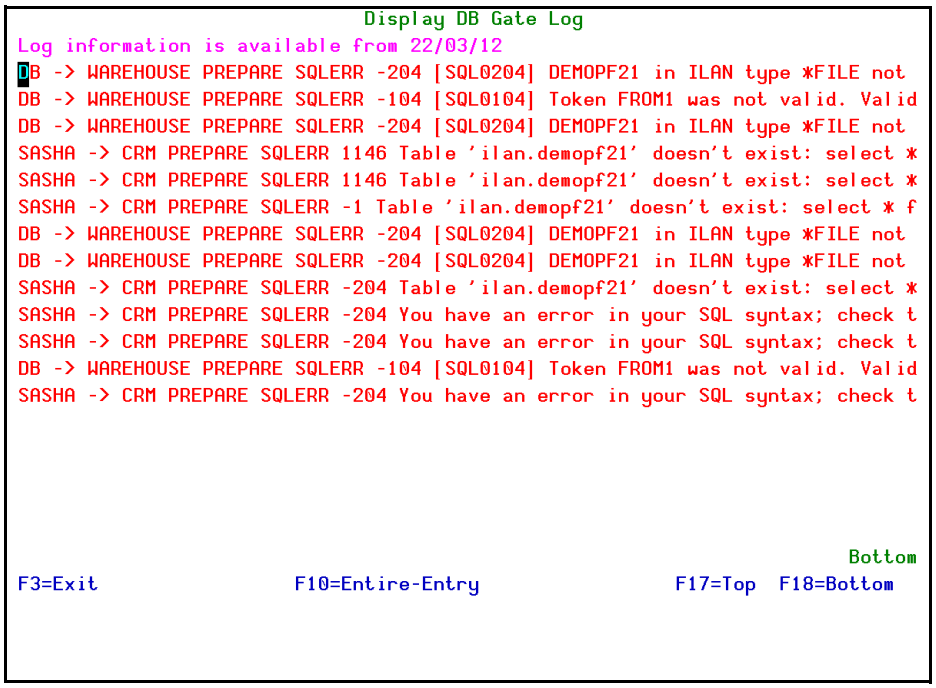

Display DB Gate Log
Log information is available from 22/03/12
DB -> WAREHOUSE PREPARE SQLERR -204 [SQL0204] DEMOPF21 in ILAN type *FILE not
DB -> WAREHOUSE PREPARE SQLERR -104 [SQL0104] Token FROM1 was not valid. Valid
DB -> WAREHOUSE PREPARE SQLERR -204 [SQL0204] DEMOPF21 in ILAN type *FILE not
SASHA -> CRM PREPARE SQLERR 1146 Table 'ilan.demopf21' doesn't exist: select *
SASHA -> CRM PREPARE SQLERR 1146 Table 'ilan.demopf21' doesn't exist: select *
SASHA -> CRM PREPARE SQLERR -1 Table 'ilan.demopf21' doesn't exist: select * f
DB -> WAREHOUSE PREPARE SQLERR -204 [SQL0204] DEMOPF21 in ILAN type *FILE not
DB -> WAREHOUSE PREPARE SQLERR -204 [SQL0204] DEMOPF21 in ILAN type *FILE not
SASHA -> CRM PREPARE SQLERR -204 Table 'ilan.demopf21' doesn't exist: select *
SASHA -> CRM PREPARE SQLERR -204 You have an error in your SQL syntax; check t
SASHA -> CRM PREPARE SQLERR -204 You have an error in your SQL syntax; check t
DB -> WAREHOUSE PREPARE SQLERR -104 [SQL0104] Token FROM1 was not valid. Valid
SASHA -> CRM PREPARE SQLERR -204 You have an error in your SQL syntax; check t
Bottom
F3=Exit
F10=Entire-Entry
F17=Top
F18=Bottom

Figure 6-3. Display DB-Gate Log

To view further details on the output, select **F10. Entire Entry**. The following screen appears.

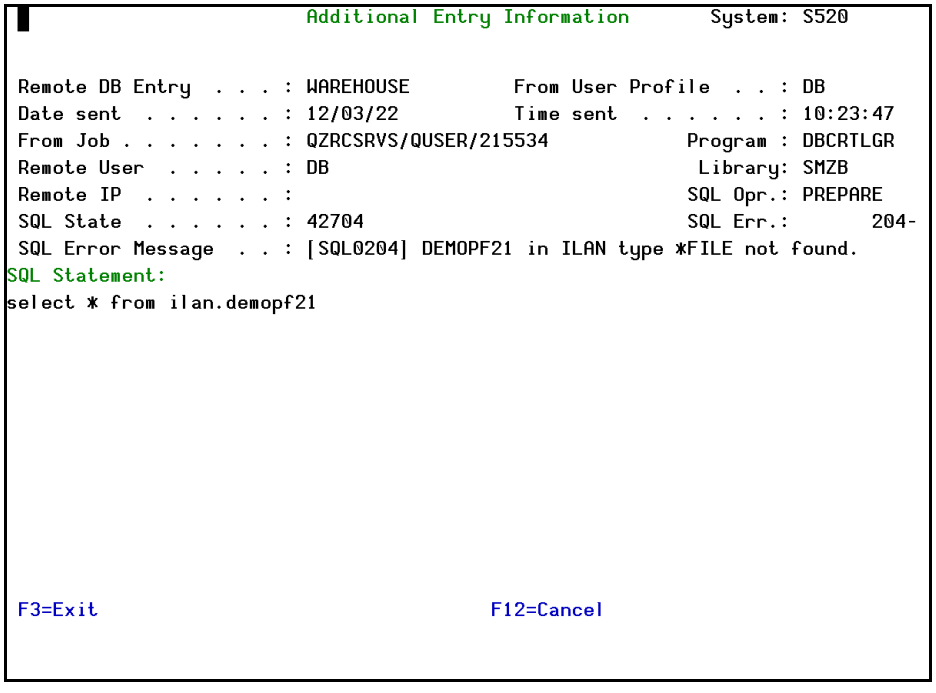

Additional Entry Information
System: S520
Remote DB Entry . . . : WAREHOUSE
From User Profile . . : DB
Date sent . . . . . : 12/03/22
Time sent . . . . . : 10:23:47
From Job . . . . . : QZRCSRVS/QUSER/215534
Program : DBCRTLGR
Remote User . . . . . : DB
Library: SMZB
Remote IP . . . . . :
SQL Opr.: PREPARE
SQL State . . . . . : 42704
SQL Err.: 204-
SQL Error Message . . : [SQL0204] DEMOPF21 in ILAN type *FILE not found.
SQL Statement:
select * from ilan.demopf21
F3=Exit
F12=Cancel

Figure 6-4. Additional Entry Information from DB-Gate Log

7 Remote User ID

This chapter details how to work with server authentications. The parameters and settings rely on standard IBM commands, such as **ADDSVRAUTE** and **CHGSVRAUTE**, which are described in detail in IBM's literature.

At the time that authentication information is required, the data entered here will be used. This eliminates the need for repetitive entries of the authentication information.

Injection of Remote User IDs

To set up auto injection of remote user IDs, select **21 - Work with Server Authentication** from the main menu and press **Enter**.

The **Work with Server Authentication Entries** screen is displayed as shown in Figure 7-1 on page 40.

```
                  Work with Server Authentication Entries
                                          Subset by user . . . .
Type options, press Enter.                          server . . .
  1=Select   4=Remove                               remote user.

Opt  User        Server                  Remote user             Password
 _   AU          CRM1                    SASHA2
 _   AU          RDBIMP                  QSECOFR                   *YES
 _   AU          S520DDM                 QSECOFR                   *YES
 _   AV          testrdb10               AV
 _   DB          CRM                     SASHA                     *YES
 _   DB          LOGISTICS               sasha                     *YES
 _   DB          SALES                   tm1                       *YES
 _   DB2ADMIN    acum_db                 DB2ADMIN                  *YES
 _   DB2ADMIN    ACUMSDB                 db2admin                  *YES
 _   DPROP       ODED                    DPROP
 _   DPROP       REPLICA                 ODED
 _   DPROP       SHI                     DPROP
 _   DPROP       192.168.168.182         DPROP
 _   DPROP       192.168.168.4           DPROP
 _                                                              More...
F3=Exit    F6=Add New    F12=Cancel
```

Figure 7-1. Work with Server Authentication Entries

To view a specific subset of server authentication entries:

1. Select one of the following subset fields:
   - **User**
   - **Server**
   - **Remote User**
2. Enter the first alphanumeric characters of the entry and press **Enter**.

   The list is redisplayed with results that match your query.

Modifying a Server Authentication Entry

To modify a server authentication entry:

1. Highlight the server authentication entry that you want to update in the **Work with Server Authentication Entries** screen and press **1 - Select** and then press **Enter.**
2. When the **Modify User Authentication Entry** screen opens as shown in Figure 7-2 on page 41, update the User profile, Server and Remote user ID details displayed.
3. When you are done, press **Enter**. After the confirmation message appears, press **Enter** again to save your settings.

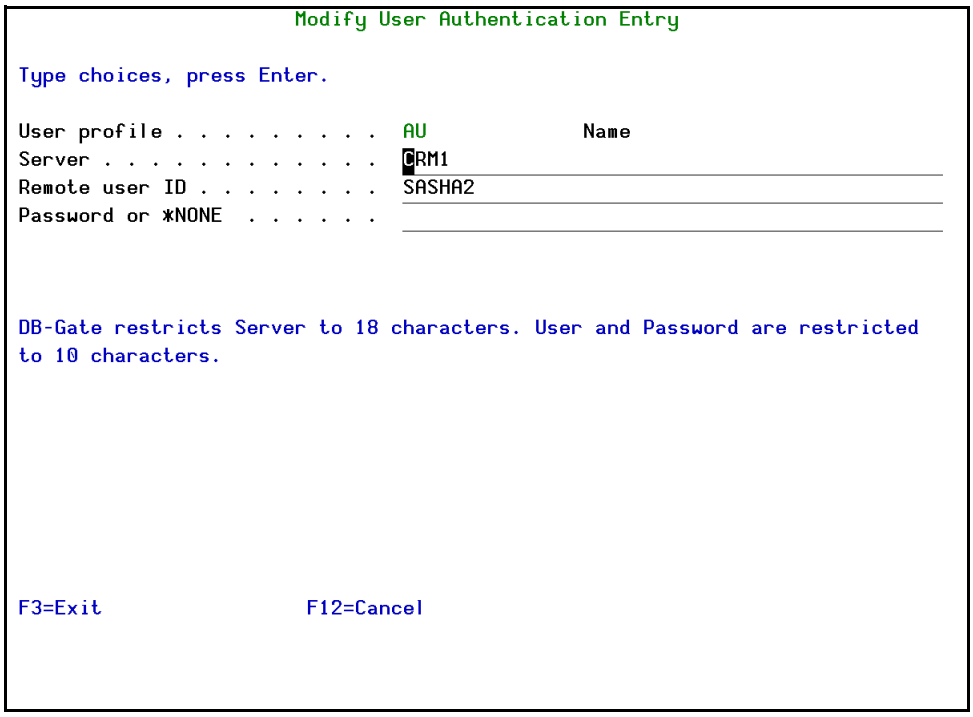

Modify User Authentication Entry
Type choices, press Enter.
User profile . . . . . AU Name
Server CRM1
Remote user ID SASHA2
Password or *NONE . . . . . .
DB-Gate restricts Server to 18 characters. User and Password are restricted to 10 characters.
F3=Exit F12=Cancel

Figure 7-2. Modify User Authentication Entry

Adding a New Server Authentication Entry

To add a new server authentication entry, press **F6 - Add New**. An empty **Add User Authentication Entry** screen appears.

8 Test Drive

This chapter includes the various ways you can start SQL and work with SQL programs. These features rely on standard IBM commands, which are described in detail in IBM literature.

Starting SQL

To begin writing SQL commands directly from your AS/400 select **51 - Start SQL** from the main menu and press **Enter**.

The **Enter SQL Statements** screen appears. This is the main screen for interactive Structured Query Language (SQL) for running SQL statements. SQL messages also appear on this screen.See Figure 8-1 on page 43.

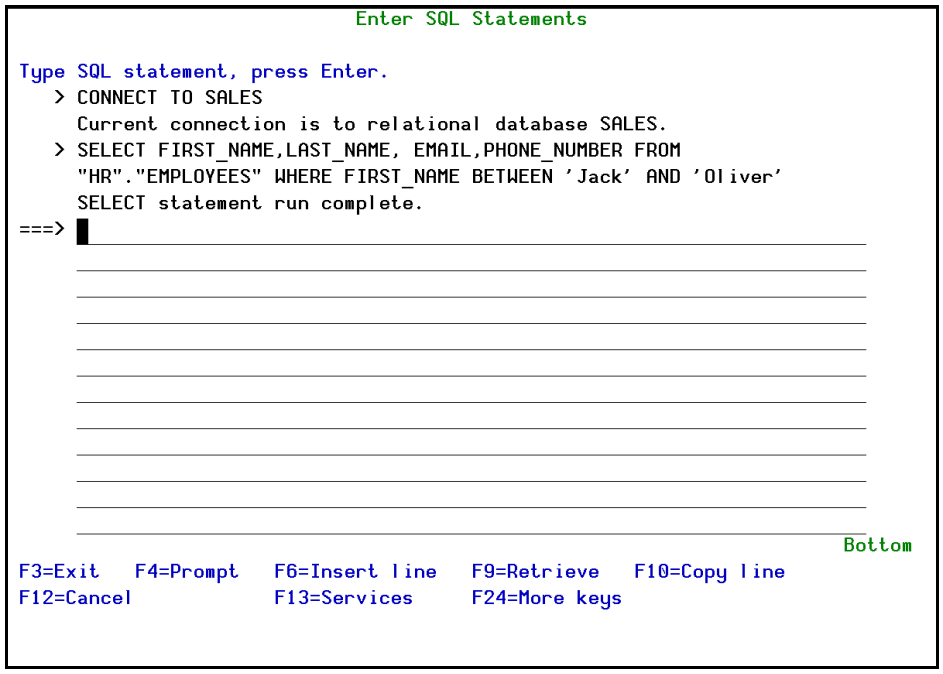

Enter SQL Statements
Type SQL statement, press Enter.
> CONNECT TO SALES
Current connection is to relational database SALES.
> SELECT FIRST_NAME,LAST_NAME, EMAIL,PHONE_NUMBER FROM
"HR"."EMPLOYEES" WHERE FIRST_NAME BETWEEN 'Jack' AND 'Oliver'
SELECT statement run complete.
===>
Bottom
F3=Exit F4=Prompt F6=Insert line F9=Retrieve F10=Copy line
F12=Cancel F13=Services F24=More keys

Figure 8-1. Enter SQL Statements

Working with SQL Program Sources

To begin working with SQL Program Sources, select **5 - Work with SQL*** program sources from the main screen and press **Enter**.

The **Work with Members Using PDM** screen is displayed as shown in Figure 8-2 on page 44.

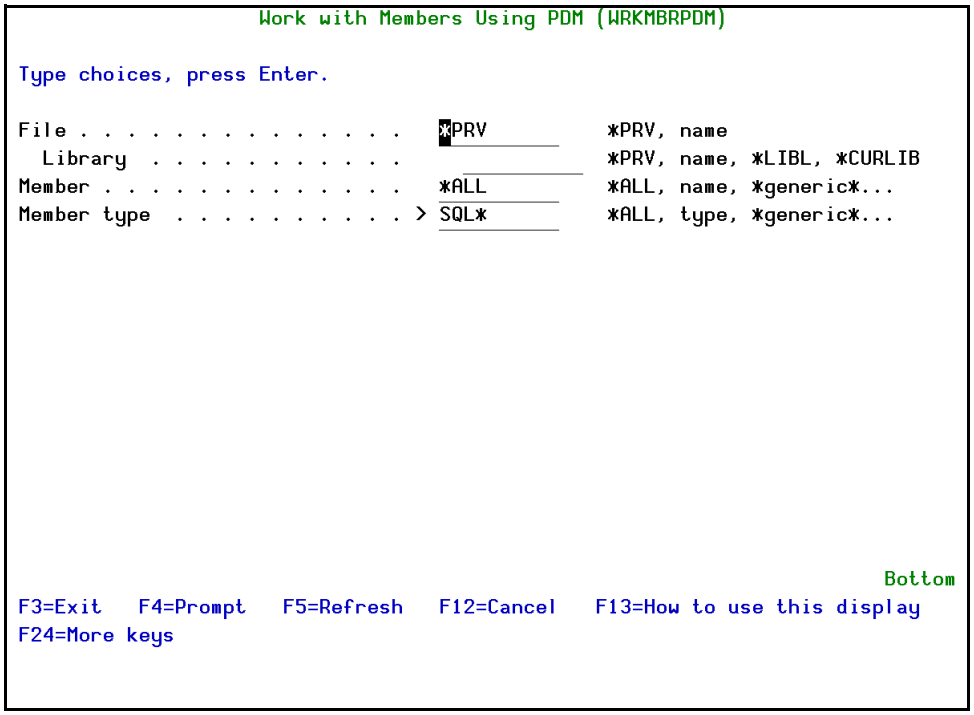

Work with Members Using PDM (WRKMBRPDM)
Type choices, press Enter.
File . . . . . *PRV *PRV, name
Library . . . . . *PRV, name, *LIBL, *CURLIB
Member . . . . . *ALL *ALL, name, *generic*...
Member type . . . . . > SQL* *ALL, type, *generic*...
Bottom
F3=Exit F4=Prompt F5=Refresh F12=Cancel F13=How to use this display
F24=More keys

Figure 8-2. Work with Members using PDM

9 System Configuration

DB-Gate is ready-to-run right out of the box. You should review a few system configuration parameters that control important features prior to using the product for the first time.

It should be pointed out that there is no “typical” or “optimal” configuration for a connectivity product such as DB-Gate. Each installation or application has different operational criteria and security needs. For example, the log requirements for a large manufacturing environment may be quite different from those for a bank, a software developer or a service organization.

To begin system configuration, select **81 - System Configuration** from the main screen and press **Enter**. The **DB Directory Entry System Configuration** screen appears as shown in Figure 9-1 on page 45.

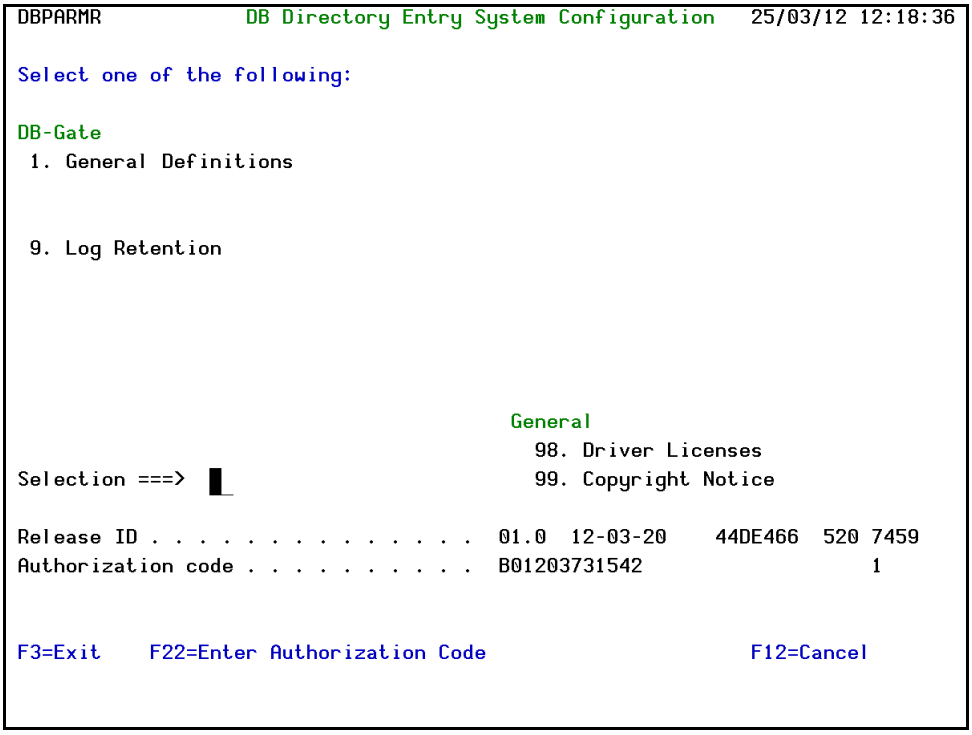

DBPARMR DB Directory Entry System Configuration 25/03/12 12:18:36
Select one of the following:
DB-Gate
1. General Definitions
9. Log Retention
General
98. Driver Licenses
99. Copyright Notice
Selection ===>
Release ID 01.0 12-03-20 44DE466 520 7459
Authorization code B01203731542 1
F3=Exit F22=Enter Authorization Code F12=Cancel

Figure 9-1. DB Directory Entry System Configuration

After you modify any of the parameters accessible from this menu, the message **Modify data, or press Enter** appears upon return to the menu.

General Definitions

Refer to Activation on page 11 for detailed descriptions and instructions on the three Run modes.

To change the global settings of DB-Gate:

1. Select **1 - General Definitions** from the **System Configuration** screen. The **General Definitions** screen appears as shown in Figure 9-2 on page 46.

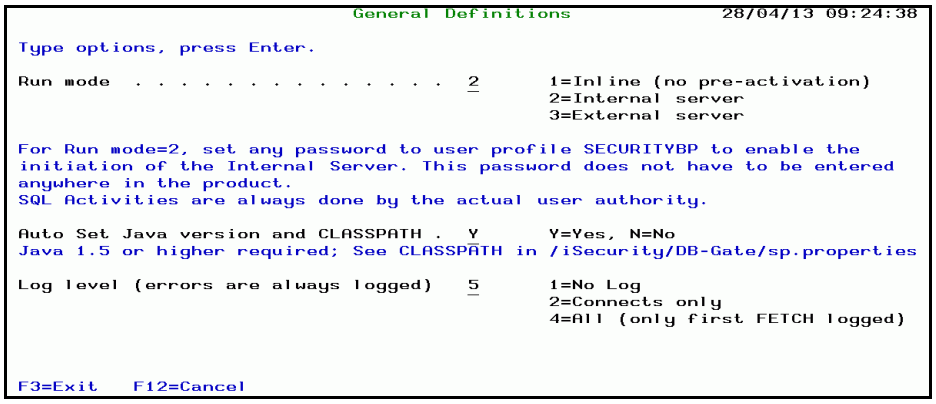

General Definitions 28/04/13 09:24:38
Type options, press Enter.
Run mode . . . . . 2 1=Inline (no pre-activation)
2=Internal server
3=External server
For Run mode=2, set any password to user profile SECURITYBP to enable the initiation of the Internal Server. This password does not have to be entered anywhere in the product.
SQL Activities are always done by the actual user authority.
Auto Set Java version and CLASSPATH . Y Y=Yes, N=No
Java 1.5 or higher required; See CLASSPATH in /iSecurity/DB-Gate/sp.properties
Log level (errors are always logged) 5 1=No Log
2=Connects only
4=All (only first FETCH logged)
F3=Exit F12=Cancel

Figure 9-2. General Definitions Screen

2. Enter a Log level setting from one of the following options:

Option	Description
1 = No Log	No data is stored.
2 = Connect	The log will store a record of each connection and disconnection from a database.
4 = All	The log will store all commands sent; when a **Fetch** command is sent, it will only store the first in the series.

NOTE: Modifying a Directory Entry on page 23 describes how to change a global default setting (**0=Global**) default setting for a specific directory entry. The above procedure overrides the global default setting (**0**).

Log Retention

Setting DB Log Retention Parameters

Log Retention parameters govern the retention and backup of the DB-Gate history log files. In order to preserve desk storage capacity and improve query response time, you should retain transactions for the minimum period necessary to maintain an effective audit program. The recommended initial settings are shown below.

To set the log retention periods:

1. Select **9 - Log Retention** from the **DB Directory Entry System Configuration** screen.

   The **DB Log Retention** screen appears as shown in Figure 9-3 on page 47 and described in Table 9-1 on page 47.
2. Enter the parameters as defined in the table below. When you are done, press **Enter**.
3. After the confirmation message appears, press **Enter** again to save your settings.

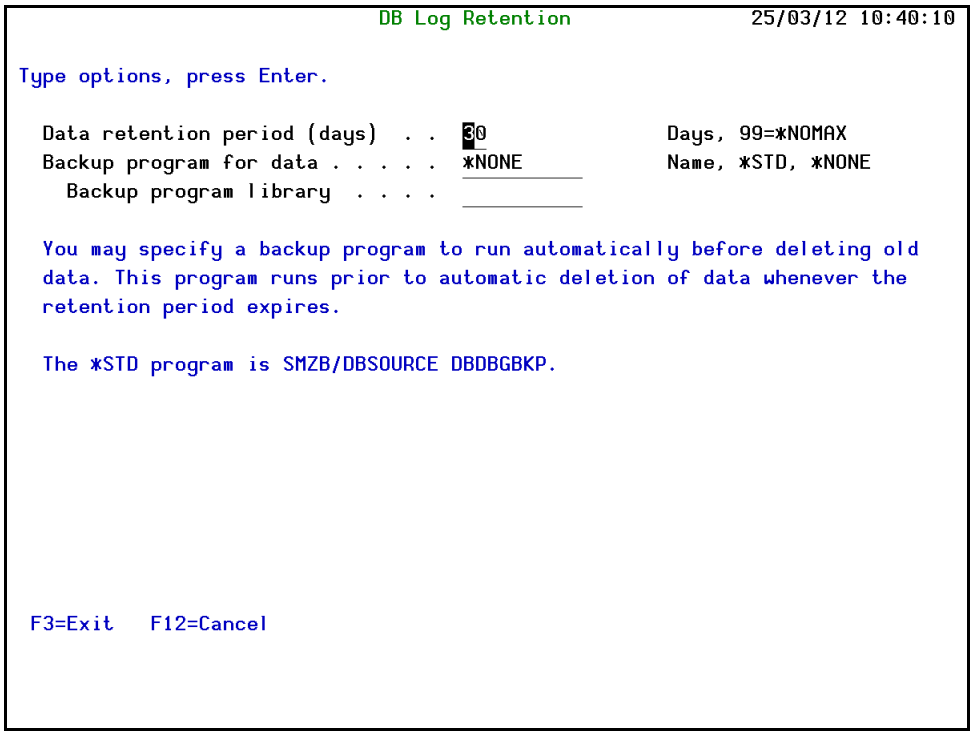

DB Log Retention
25/03/12 10:40:10
Type options, press Enter.
Data retention period (days) . . 30
Days, 99=*NOMAX
Backup program for data . . . . . *NONE
Name, *STD, *NONE
Backup program library . . . .
You may specify a backup program to run automatically before deleting old data. This program runs prior to automatic deletion of data whenever the retention period expires.
The *STD program is SMZB/DBSOURCE DBDBGBKP.
F3=Exit
F12=Cancel

Figure 9-3. DB Log Retention

Table 9-1: DB Log Retention Parameters

Parameter	Description
Data retention period	The number of days that the queries are retained. At the end of this period, queries are purged from the log. Enter 99 to retain all data indefinitely.
Backup Program for data	Enter the name of the backup program you wish to use: ***STD** to use the standard backup program, or ***NONE** for no backup.
Library	Enter the name of the library where it is located.

10 Maintenance Menu

The **Maintenance Menu** lets you set and display global definitions for DB-Gate.

To open it, select **82 - Maintenance Menu** from the main menu.

The **Maintenance Menu** appears as shown in Figure 10-1 on page 49.

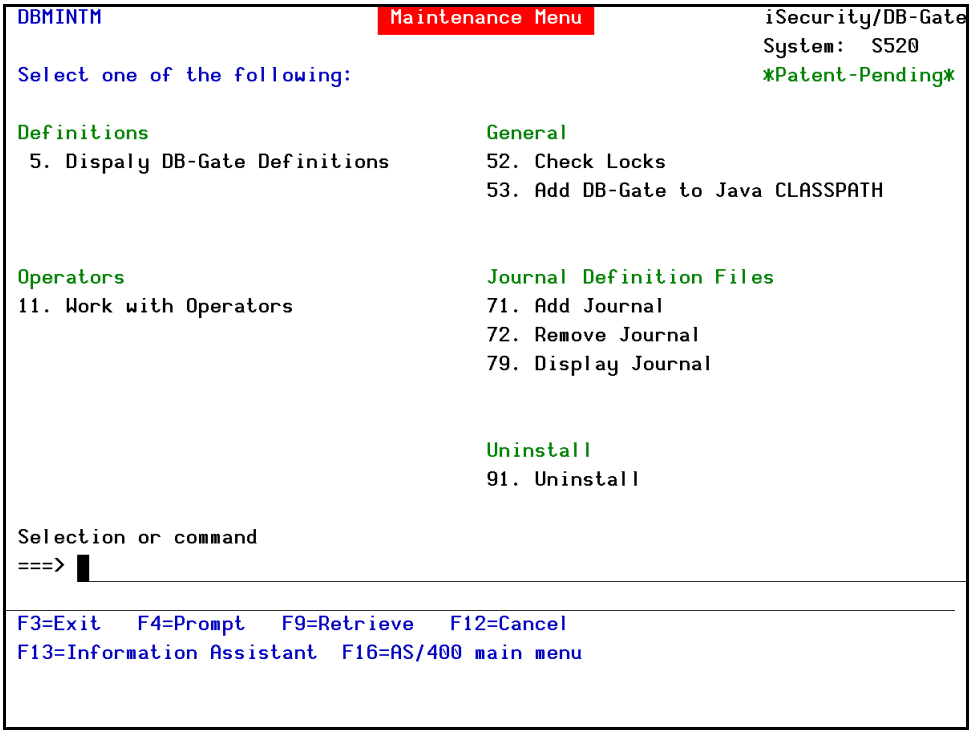


Figure 10-1. Maintenance Menu

Display DB-Gate Definitions

To print the definitions that you entered for DB-Gate:

1. From the **Maintenance Menu** screen, select **5 - Display DB-Gate Definitions**.

   The **Display DB-Gate Definitions** screen appears as shown in Figure 10-2 on page 50. Table 10-1 on page 50 explains the options.

Table 10-1: DB Gate Definition Options

Parameter	Value	Description
Report Type	***ALL**	All of the following options
	***DBENTRY**	The definitions for the Directory Entries
	***DBDRVR**	The definitions for the DB Drivers
From Item	***All**	
	***Start**	From the beginning of all values
To Item	***Only**	
	***Last**	
Format	***List**	Short form
	***Details**	Full form
Output	*	Screen
	***Print**	Spool

2. When you are done, press **Enter**.
3. After the confirmation message appears, press **Enter** again to save your settings.

```
                  Display DB-Gate Definitions (DSPDBDFN)

Type choices, press Enter.

Report type  . . . . . . . . . . > *DBENTRY      *ALL, *DBENTRY, *DBDRVR
From item  . . . . . . . . . . .   *ALL          Character value, *ALL, *START
To item  . . . . . . . . . . . .   *SAME         Character value, *ONLY, *LAST
Format . . . . . . . . . . . . .   *DETAILS      *LIST, *DETAILS
Output . . . . . . . . . . . . .   *             *, *PRINT

                                                                        Bottom
F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F13=How to use this display
F24=More keys
```

Figure 10-2. Display DB-Gate Definitions Screen

Work with Operators

The operators' authorities' management is maintained in one place for this product. It also offers the site a possibility of implementing a second password to protect use of the product.

There is one default group: *AUD#SECAD. It allows all users both *AUDIT and *SECADM special authorities. By default, this group has full access (Read and Write) to all the product's components.

You may add more operators, delete them, and give them authorities and passwords according to your own judgment. You even have the option to make the new operators' definitions apply to all your systems; therefore, upon import, they will work on every system.

To view existing operator's authorities and modify them, do the following.

1. From the **Maintenance Menu**, select **11 - Work with Operators**.
   The **Work with Operators** screen appears as shown in Figure 10-3 on page 51.

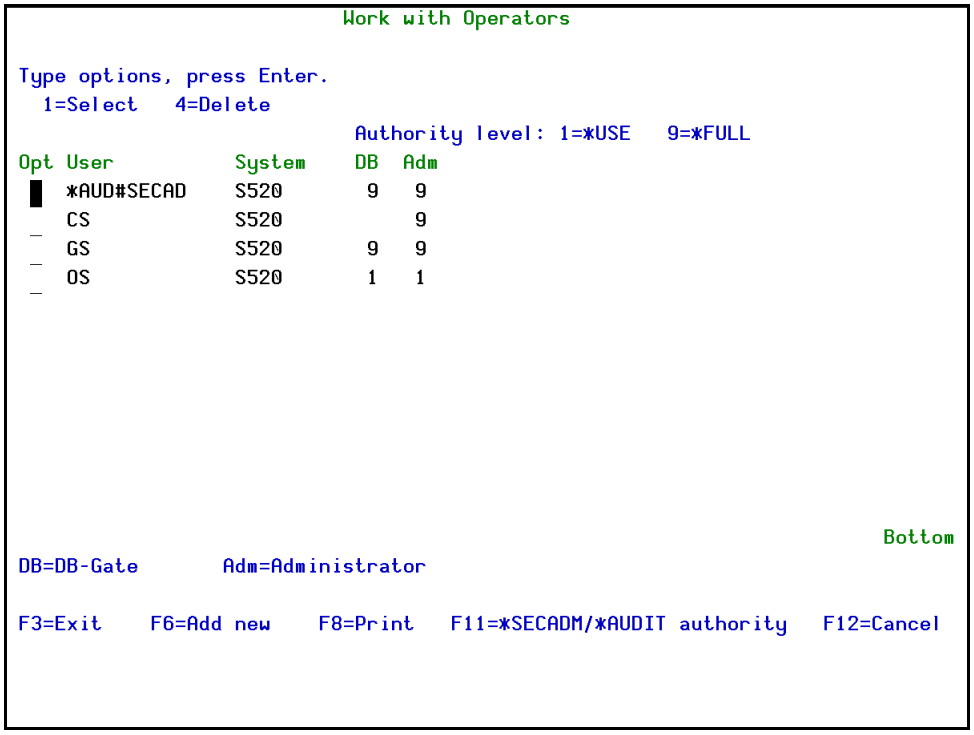


Figure 10-3. Work with Operators

2. To modify an operator, highlight it and choose **1 - Select**.
   The **Modify Operator** screen appears as shown in Figure 10-4 on page 52.
3. To add a new operator, press **F6.**

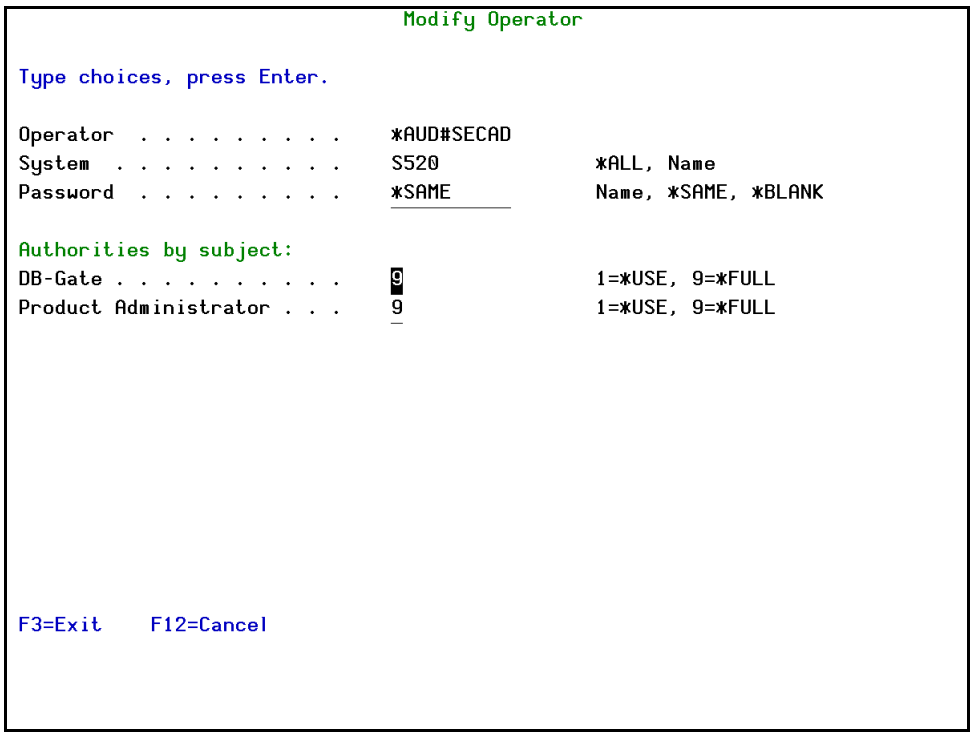

Modify Operator
Type choices, press Enter.
Operator . . . . . *AUD#SECAD
System . . . . . S520 *ALL, Name
Password . . . . . *SAME Name, *SAME, *BLANK
Authorities by subject:
DB-Gate . . . . . 9 1=*USE, 9=*FULL
Product Administrator . . . 9 1=*USE, 9=*FULL
F3=Exit F12=Cancel

Figure 10-4. Modify Operator Screen

Table 10-2 on page 52 explains the parameters on the **Modify Operator** Screen.

Table 10-2: Modify Operator - Parameters

Parameter	Value	Description
Operator		The Operator can be a user or group profile. DG Gate provides one type of Operator group: *AUD#SECAD. This group has full access (Read and Write) to all parts of DB-Gate.
System	*ALL	
	Name	
Password	Name	Password
	*SAME	Same as previous password when edited
	*BLANK	No password
DB-Gate	1	User of the product ***USE** (Read authority only)
	9	User of the product ***FULL** (Read and Write authority)
Product Administrator		Person responsible for backups, setting authorization codes, etc. **1=*USE** (Read authority only) **9=*FULL** (Read and Write authority)

Check Locks

To verify if objects are locked in the system, select **52 - Check Locks** from the **Maintenance Menu**.The **Check Locks** screen appears as shown in Figure 10-5 on page 53.

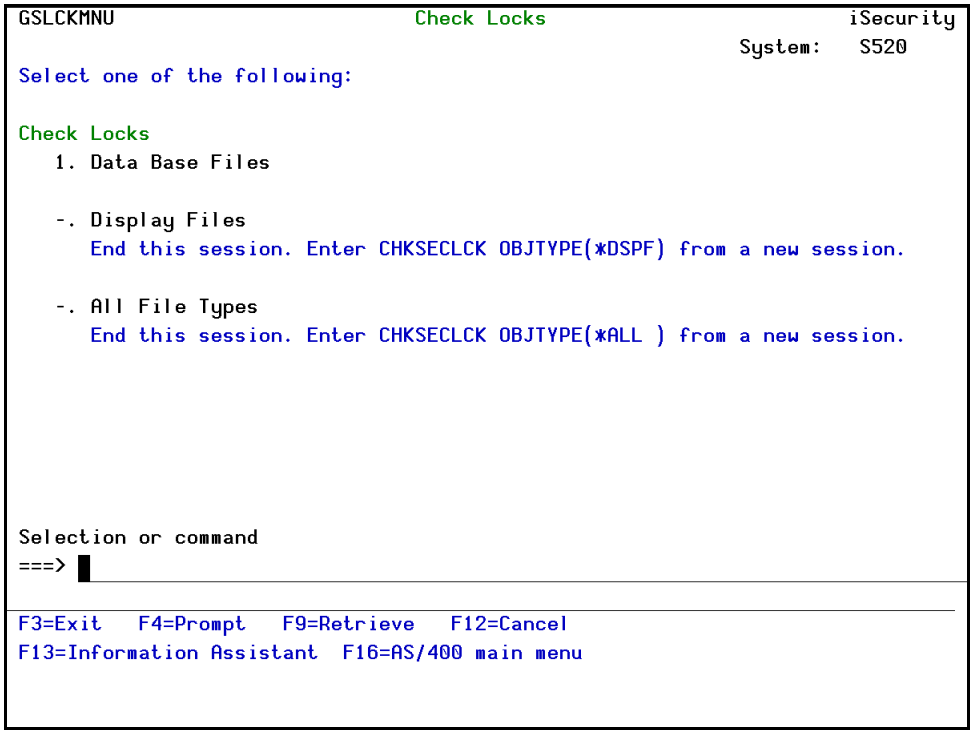


Figure 10-5. Check Locks Screen

Uninstall

Use the Uninstall feature to remove DB-Gate from your computer.

1. Select **91 - Uninstall** from the Maintenance Menu.
2. Follow the directions that follow on the **Uninstall SECURITYBP** screen.

```
                          Uninstall SECURITYBP

You are about to uninstall this product.
All program files, data and definitions will be deleted.
You are advised to print this screen for further reference.
Before proceeding, ensure that:
  o No user or batch job is working or intends to work with this product


To run uninstall procedure you should do the following:
  o Exit from the current session
  o Open a new session using QSECOFR or equivalent user profile
  o Enter: CALL SMZB/DBRMVPRD

Once the uninstall is completed, enter: DLTLIB SMZB
Manually delete IFS directory /iSecurity/DB-Gate
Backups of previous releases might exist under the name QGPL/P_SMZ*
To confirm proper uninstall, use DSPUSRPRF SECURITYBP TYPE(*OBJOWN)


F3=Exit
```

Figure 10-6. Uninstall SECURITYBP Screen

11 Troubleshooting

This chapter describes various issues that may arise and how to handle them. Please review the following sections prior to contacting your Raz-Lee distributor or customer support.

Issue:

`Java versions lower than v5.0 loaded by default.`

Workaround: DB-Gate requires Java v. 5 or higher to run. If any job has an earlier version of Java loaded, perform the following workaround, running either

- Mode 1 - Inline
- Mode 2 - Internal Server (recommended)

Mode 1 - Inline

The following steps will impact on all Java programs running in every job.

1. Copy the file:
   /iSecurity/DB-Gate/sp.properties
   to:
   /iSecurity/DB-Gate/SystemDefault.properties
2. Update the Home Directory for the user profile to your own unique IFS folder. Modify the desired user profile by typing the following command:
   CHGUSRPRF USRPRF(xxx) HOMEDIR('/iSecurity/DB-Gate')
3. Run the command sequence:
   STRDB > 81 > 1
4. Turn off **Auto Set Java version and CLASSPATH**
5. Make sure that the file **SystemDefault.properties** contains the line:
   java.version=1.5

```
                          General Definitions              28/05/13 12:31:00

Type options, press Enter.

Run mode  . . . . . . . . . . . . . . .  1       1=Inline (no pre-activation)
                                                 2=Internal server
                                                 3=External server

For Run mode=2, set any password to user profile SECURITYBP to enable the
initiation of the Internal Server. This password does not have to be entered
anywhere in the product.
SQL Activities are always done by the actual user authority.

Auto Set Java version and CLASSPATH .  N       Y=Yes, N=No
Java 1.5 or higher required; See CLASSPATH in /iSecurity/DB-Gate/sp.properties

Log level (errors are always logged)   5       1=No Log
                                                 2=Connects only
                                                 4=All (only first FETCH logged)



F3=Exit    F12=Cancel
```

Figure 11-1. General Definitions Screen - Mode 1 Options

6. Start a new job to test.

Mode 2 - Internal Server

It is recommended to use Mode 2 since only the internal DB-Gate user will be affected.

1. Copy the file:
   /iSecurity/DB-Gate/sp.properties
   to:
   /iSecurity/DB-Gate/SystemDefault.properties
2. Update the Home Directory for the user profile to your own unique IFS folder For example, to modify the **SECURITYBP** user profile, type:
   CHGUSRPRF USRPRF(SECURITYBP) HOMEDIR('/iSecurity/DB-Gate')
3. Run the command sequence:
   STRDB > 81 > 1
4. Turn off **Auto Set Java version and CLASSPATH**:by changing the status to **N**.
5. Make sure that the **SystemDefault.properties** file contains the line:
   java.version=1.5
6. Deactivate and then reactivate the server.

Error Messages in Server Mode

The following error messages may appear when running in server mode.

DB-Gate messages in server mode

Message

```
DB-Gate server disconnected.
```

Reason. DB-Gate has disconnected from running SQL job due to activation group end, job end or explicit disconnect request for that job ('Release Job' from GUI).

Message

```
No response from DB-Gate server.
```

Reason. DB-Gate server is not currently active.

Message

```
Connection terminated. Job should be restarted.
```

Possible Reasons. ■

- DB-Gate server has been deactivated while SQL job was working with DB-Gate. This doesn't mean DB-Gate server is not currently active but any connection made with DB-Gate until that message is lost. It is recommended to restart the job.
- Error in the Java engine of DB-Gate

Appendix A: JDBC Driver

A

Adding an Entry

To add an entry:

1. Type **STRDB**, then select option **1 - Work with Directory Entries**.
2. Press **F6**, give it a name and point it to the supplied PC_FILE driver as shown in Figure A-1 on page 57.
3. Press **Enter**. Set log level and language support if needed and confirm.

   The entry is activated and available for use.

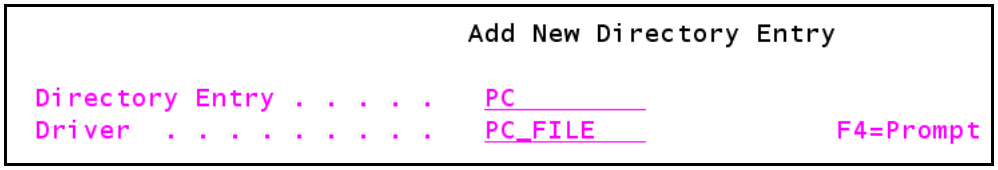


Figure A-1. Add New Directory Entry

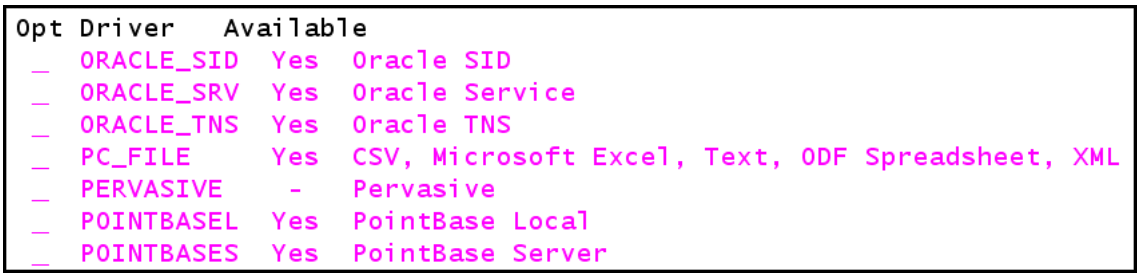

Opt Driver Available
_ ORACLE_SID Yes Oracle SID
_ ORACLE_SRV Yes Oracle Service
_ ORACLE_TNS Yes Oracle TNS
_ PC_FILE Yes CSV, Microsoft Excel, Text, ODF Spreadsheet, XML
_ PERVASIVE - Pervasive
_ POINTBASEL Yes PointBase Local
_ POINTBASES Yes PointBase Server

Figure A-2. Opt Driver Available

The driver operates based on target file's extension:

- xls/xlsx for MS Excel
- csv for comma-separated values
- ods for ODF spreadsheet
- txt and any other extension is treated as text file.

Connecting

Working with the JDBC Driver Connect the entry (no user/password is required): **CONNECT TO PC**

Complete either of the following steps:

- An SQL 'COMMENT ON' statement: **COMMENT ON QGPL.MY_TABLE IS 'file:///tmp/customers.xls'**
- One can also use: **COMMENT ON QTEMP.MY_TABLEIS...**or **COMMENT ON MY_TABLEIS...**

NOTE: In both cases, the file MY_TABLE is created in an internal QTEMP library. This is not to be confused with the current Job's QTEMP lib.

When issuing the SELECT statement the QTEMP library must be specified:

SELECT* FROM QTEMP.MY_TABLE

When completed, the file QGPL/MY_TABLE is created and available with the data.

An SQL 'SELECT' statement: **SELECT * FROM QGPL.MY_TABLE**

The driver accesses the source PC file in a read only manner.

Excel sheets can be accessed by specifying the sheet number in the '**COMMENT ON**' statement.

Example:

COMMENT ON QGPL.MY_TABLE IS 'file:///tmp/customers.xls@2'

On this example, the file is **customers.xls** and the query targets the second sheet @2.

The first sheet is '@1'.

Tables embedded in ODF Text Documents (LibreOffice/OpenOffice) can be accessed in the same manner as sheets on Excel spreadsheet.

Table A-1: Access Protocols Examples

Function Key	Description
File	Mainly for accessing files in the IFS file system: **COMMENT ON QGPL.MY_TABLE IS 'file:///tmp/customers.xls'**
HTTP	Mainly for the web **COMMENT ON QGPL.MY_TABLE IS 'http://www.razlee.info/gui/db_gate/ms.xls'**
FTP	**COMMENT ON QGPL.MY_TABLE IS 'ftp://myserver.com/readme.txt'**
SMB	MS Windows shares **COMMENT ON QGPL.MY_TABLE IS 'smb://192.168.1.181/shareddocs/sales.csv'**